The OIL WEEKLY

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PETROLEUM REFINER and The REFINERY CATALOG for the refining-natural gasoline industry

THE OIL WEEKLY

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LOOKING AHEAD
. . . with the Editor

GROWING doubt that the industry will be able to produce enough oil a year hence if consumption continues to rise at rates that have existed recently, makes wildcat discovery rates the most important question before the industry.

Next week THE OIL WEEKLY will present its monthly compilation of wildcat drilling and discovery rates, and it should be of more than usual interest. Seven months of the year will be covered, and thus will give a good idea of wildcat activity and probable results for the full year. Furthermore, the report covering the past month is of more than usual interest. July may go down on the records as the most successful month of the year in search for new oil reserves. Not only was there a record number of discoveries for any month this year, but preliminary figures indicate the discoveries probably will represent more new oil than had been found in previous months of 1943.

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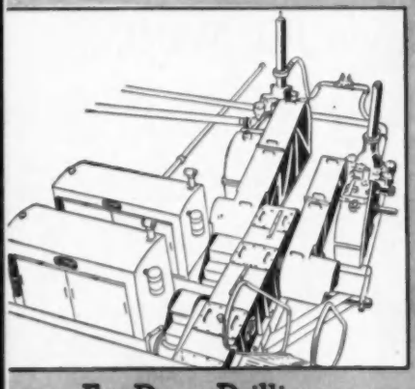
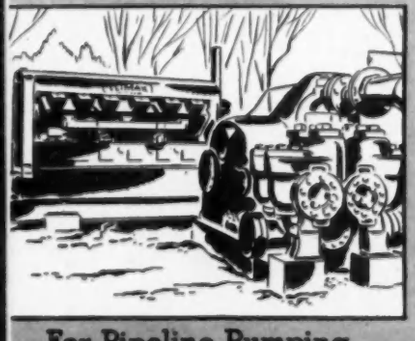


For Deep Drilling



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The Changing Panorama

PAW Decentralization Should Prove Big Help

UNDOUBTEDLY decentralization of PAW will result in better operating conditions and improve relationship between the industry and that government agency. First tried in California (District 5), the coming of autonomous control resulted in spectacular results. Now that autonomy has been given to Districts 2 and 3, the same results as experienced in California are to be expected.

E. S. Bunch, THE OIL WEEKLY's California editorial representative, makes the following summary of the influence of decentralization in that area:

"At the turn of the year, California operations were all but paralyzed by the shackles of remote control. Confusion fed upon confusion, and the situation became desperate, almost to the point of hopelessness. But almost from the day last spring when the West Coast district was set up as a separate PAW command, with Hugh R. Gallagher veteran California oil man, as director-in-charge, the industry once again has been going full-steam ahead, and gaining momentum all the time.

"The first great boon to California producers came when M-68 well-spacing regulations went into the discard, and the Gallagher administration set out to grant drill sites on a basis of common sense in place of a meaningless formula. Gallagher, armed with authority to make final decisions on the spot, soon had Supplementary Order 4 working to fit everybody's needs. Even when that order proved ambiguous or insufficient, there was no delay. He heard the operator's troubles at first hand and let the merits of the case decide it then and there.

"Geographical isolation of California's oil fields and refineries from Washington authority was the greatest evil of the old set-up. Things were made immeasurably worse because specific knowledge of peculiar local conditions were limited in the Washington bureau. What makes the new plan work so well is that direct contact with final authority gives immediate action and the decisions now are made by arbiters intimately familiar with all angles of local problems. No longer are necessary those endless long-distance negotiations with Washington that entailed interminable correspondence, costly long-distance telephone conferences or a 6000-mile round trip between California and the capital.

"Evidence of the boost given individual effort by extending "home rule" to the California industry is partly exemplified by the trend of operations. Before decentralization became effective, January through March, about 23 wells a week were being completed. In the 90 days following, the average rose to 31 a week, with a further increase now in prospect. Rigs in operation, including those drilling, rigging up and shutdown on April 1 numbered 222. On August 1, the total had risen to 313. Of course, the 25-cent-per-barrel increase in heavy-crude-oil prices on April 1 also was an important factor in encouraging more drilling.

"Although the lion's share of immediate benefits have accrued to the production division, great help also has been given to refining, marketing and transportation departments. In these three branches, there were more "spade-work" to do as a preliminary to setting forth exact needs, and this accounted for some delay. But results of magnitude now are beginning to appear, and more are in prospect.

"In California a much more harmonious relationship between PAW direction and all elements of the industry has supplanted a situation which was little short of chaotic. Cooperation long sought but never attained with Washington the center, at last is a reality."

The Story of

BIG-INCH

THE nearly 1400-mile pipe line artery known to many by the affectionate name of "Big-Inch" is now pulsing with lifeblood.

Big-Inch is more than a mammoth pipe line. It is an engineering and construction achievement of vast importance that pioneers new pipe line building and operating methods. It also is the Nation's Lifeline, through which will move precious oil for the fighting fronts of Europe, for the war plants of the industrial East, and for the petroleum-famined civilians of the East Coast. In addition, Big-Inch is an outstanding example of cooperative endeavor. Never before have so many concerns (12 oil companies) forgotten business rivalry and joined hands with the government in a single enterprise.

This issue of The OIL WEEKLY is devoted largely to this miracle in oil transportation. Here is the first complete story of the engineering and construction problems and methods all along its 1388-mile route. A feature of the issue is a 29-page pictorial section, which shows how Big-Inch was built. Included in the pictures are the first complete views of its pump stations that the War Department has permitted to be published. These pictures, together with accompanying articles, tell of its vast significance from all angles.

The issue is dedicated to all those "home front soldiers" that made Big-Inch possible—PAW officials, oil company executives, officials and engineers of War Emergency Pipe Line, Inc., construction contractors, manufacturers and the thousands of workers who fought not only the size of the line itself, but also against the handicaps of heat and dust, cold and snow, rain and mud, mighty rivers, swamps and mountains to complete Big-Inch in record time.

Texas Gasoline Use Up Due to Military Needs

RISING consumption of gasoline in Texas and the Southwest despite rationing, has become the subject of considerable debate and criticism. Undoubtedly, the increase is largely accounted for by the extremely heavy military demand in this area. As anyone knows who has crossed Texas, for instance, within the past few months, it is almost impossible to get out of sight of training planes in the sky from one side of the state to the other, to say nothing of what is going on on the ground around the numerous Army training camps.

Military fuel demands are of necessity kept secret, but the trend is bound to be upward. It is no secret that more soldiers and particularly pilots, are trained in Texas than elsewhere. The highest priority rating has been given to materials and apparatus for all plants under construction that will make 100-octane gasoline, indicating the trouble being encountered in supplying enough gasoline. Much of the air force training is done on lower grades of gasoline, it must be remembered.

Confusion recently arose over figures released by the Texas comptroller's office wherein it was stated that tax-free government agencies were consuming approximately 50 percent of the total gasoline consumed in the state. If

by "agencies" is meant the Army and Navy, the statement probably is somewhere nearly correct. However, if as has been interpreted in a few instances, "agencies" means OPA, PAW, etc., then the statement is grossly incorrect.

In reality, agencies, exclusive of the military branches of the government, probably use no more gasoline than the average citizen. One, for example, PAW with headquarters in Houston has a staff of 92 people and there are only three cars in the organization entitled to "tax-free" gasoline.

It must be understood by the public that we do face a shortage of fuels for our armed forces at this time. Those charged with the responsibility of maintaining the supply are on the job 24 hours a day trying to keep ahead of demands. So far they have been able to do so. Their efforts should not be handicapped by misinformation.

Chinese Army Using Oil from Pine Trees

A NEW process for extracting crude oil and gasoline substitutes from pine tree stumps has been developed by a young chemistry instructor of Fukien Christian University in China.

This new process is a military secret for the present, but the Chinese army already is using the gasoline substitute obtained from the hundreds of thousands of tree stumps left as a result of timber exportation from the Fukien Province's forests.

Oil Transportation Facilities Growing

WITH production schedules for delivery of tankers just now getting into full swing, oil-transportation facilities are being greatly reinforced. For the first 7 months of this year, output of tankers exceeded by 40 percent the production of 1942. Through July, 88 vessels, aggregating 1,013,000 deadweight tons, were delivered, against 62 ships of 998,200 deadweight tons, in 1942.

Completion of Big-Inch with deliveries already being made to the East Coast, additional tank-car shipments made possible by release of tank cars upon completion of the pipe line, and the speed-up in tanker production, assure improved oil transportation.

Factors influencing tanker output include the Maritime Commission's wartime program of standardization of design which has cut average production time in half; mass production and prefabrication methods plus an all-out effort by both workers and management.

Under the commission's program, principal types of tankers are T2-SE-A1 and T3. These are of 16,600 deadweight tons, with a capacity of 135,000 barrels, and are being delivered approximately 100 days after the laying of keels. Schedules call for 511 additional tankers of all types within the next 17 months, which will give a total of 661 tankers delivered since Pearl Harbor.

The program is being further rounded out by conversion of 102 Liberty ships into oil carriers, each with a capacity of 65,600 barrels.

War Department Needs Foreign Maps

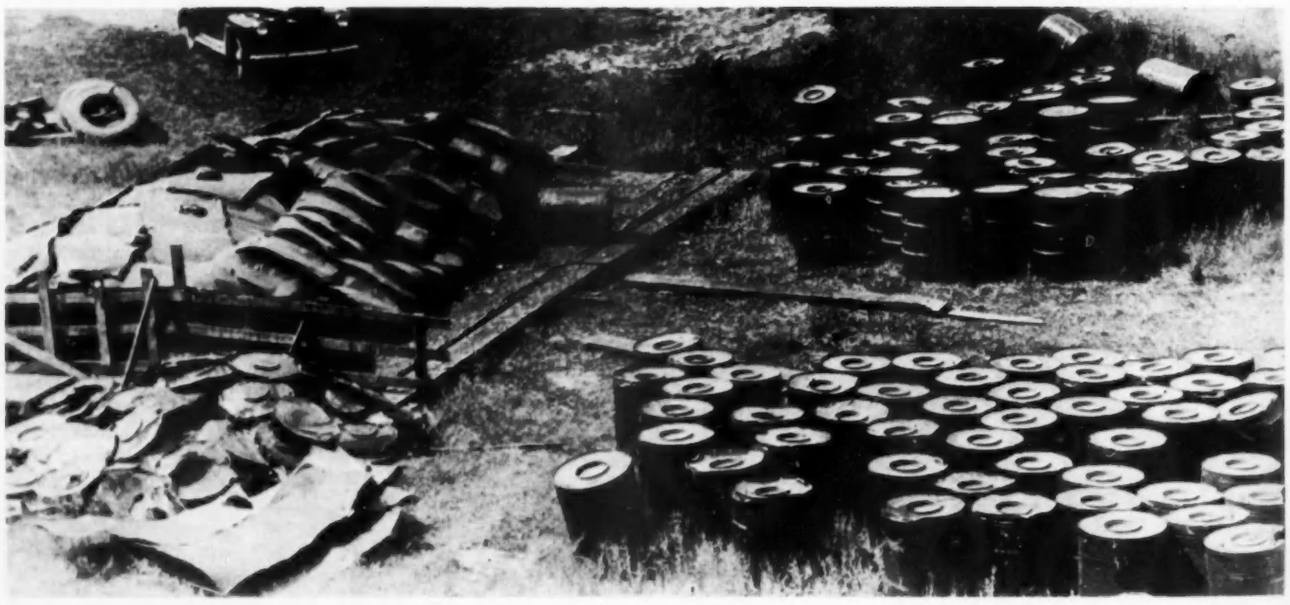
ARMY Map Service, Corps of Engineers, U.S.A., is searching for large-scale maps, guide books, gazetteers, postal guides, and place lexicons of any area outside of the United States.

Topographic maps on a scale of 1:1,000,000 (16 miles to 1 inch) or larger and city plans of a scale not smaller than 1:25,000 are of particular interest.

You can make a direct contribution to the war undertaking if you have any such maps and are willing to present them to the War Department. If you are not prepared to give them outright, you may lend them to be returned after reproductions have been made.

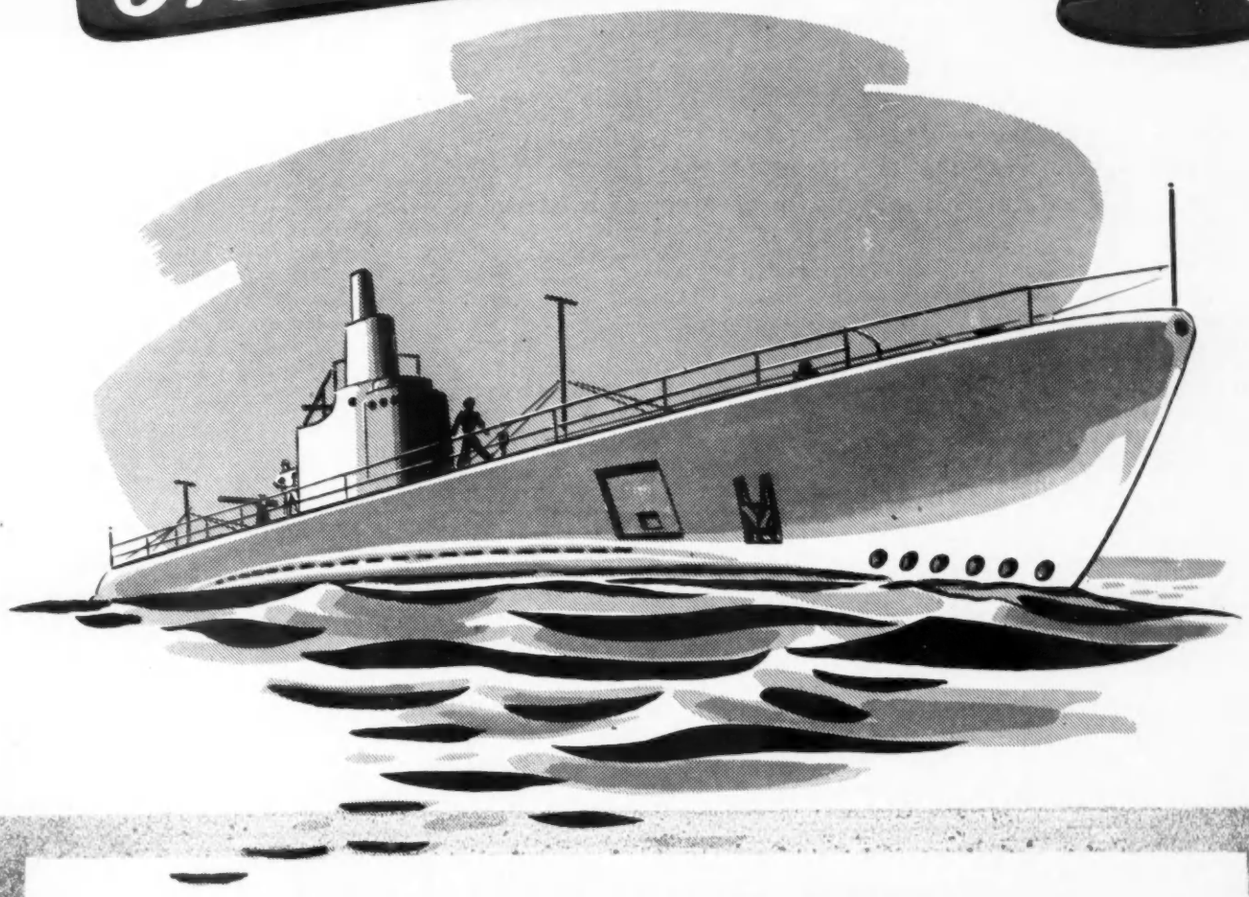
It is important to take account of what is *not wanted:* This includes maps issued by the United States Government, National Geographic Society, domestic maps, and small-scale maps.

If you yourself have none, you may know where maps of potential military value can be obtained. Franked labels will be sent so that material can be forwarded without expense of postage. Data can be submitted to, or further information obtained from: New Orleans Library Branch, Army Map Service, 900-A Maritime Bldg., New Orleans 12, Louisiana.



The Big-Inch was a colossal job, but no waste was permitted, despite the tremendous emphasis placed on speed of laying the pipe. The steel containers for the pipe-line enamel, for instance, were split from the solidified material, and the metal then flattened and piled clear of operations until it could be trucked to the nearest railroad siding and there loaded for shipment to a steel mill for reworking and, possibly, the fashioning of new containers for more enamel to be used farther down the line. Welding scrap, worn-out winch and hoist lines, and all other metals which were or might be reclaimable were salvaged and returned to original sources for reclamation or reworking.

OIL IS AMMUNITION



FOR SUBMARINES

Diesel oils provide the power for submarines. On the surface "pig" boats are driven by diesel engines, which also recharge the batteries that furnish the power for moving under the surface and for providing its interior lights, refrigeration and cooking facilities.

A noteworthy development in this war is a special anti-slick lubricant for the bearings and surfaces of submarine fins. This lubricant sinks instead of rising to the water's surface. Therefore, it leaves no tell-tale oil spots to give away the sub's location.

An ingenious device called the gyroscope keeps every torpedo fired at the enemy on a predetermined course. Protecting the mechanism of each of these intricate pieces of equipment is a special lubricant designed for this specific job.

Because submarine deck guns are subjected to the severe corrosive action of salt water when the boat submerges, high-quality protective oils and greases are essential.

The operation of a submarine depends upon the proper function of many control instruments, all requiring proper lubrication to maintain their accuracy.

Oceans of Oil Needed
YOUR JOB IS VITAL FOR VICTORY

Heavy Upon the

How well the engineering and geological professions are able to meet the unprecedented production feats the industry is being called upon to perform while hampered with low prices, too few men and too little material, may be the principal key in determining matters of far-flung significance. Besides immediate full-scale prosecution of war, the course of the country's industrial and civilian economy, and the trend of the industry itself, the whole future relationship with government is at stake

RAPIDLY rising military consumption of petroleum is thrusting upon the industry a responsibility that is becoming increasingly more important and critical as the weeks and months roll by. Already during 1943 oil industry problems have swung from a shortage of transportation to prospects of a shortage of oil. The outlook is such as to constitute a definite warning that it may be impossible for the United States to continue to meet war demands for oil, if consumption continues to grow as in recent months.

With larger numbers of planes, ships, and tanks due to come off assembly lines, and with more intensive fighting anticipated in both the European and Pacific theatres of war, all signs indicate that wartime use of oil has not yet reached its maximum. Therefore, a greater demand for oil than ever filled before, and considerably above current high levels, must be satisfied during the next year or two if the progress of the war is not to be impaired.

Truly a great responsibility has been placed upon the industry. On the one hand, it must fulfill rapidly increasing consumption requirements; and on the other, it is not permitted to have the steel and manpower that intensive drilling and producing campaigns would require. Much of the burden of meeting this situation falls upon the shoulders of the industry's technical and field men. They will be the most vital factors in determining whether the industry successfully meets the responsibilities confronting it. Upon them falls the task of finding, developing and producing greater volumes of oil with the smallest amount of steel, so as to permit the industry to meet the challenge facing it.

Vast Ultimate Repercussions

Oil men must realize the seriousness of the situation that may lie ahead, the difficulties under which it must be achieved, and also the vastly important ultimate dangers that might result from not successfully fulfilling the task imposed upon them.

How well the engineering and geological professions are able to meet the unprecedented feats that the industry is being called upon to perform while hampered with low prices, too few men and too little material, may be the principal key in determining the outcome of numerous matters of far-flung significance. More than the immediate full-scale prosecution of our war effort is at stake—the course of the country's industrial and civilian economy, the future trend of the industry itself. In addition, the whole future relationship between government and the oil business, about which there is considerable skepticism at present, may be determined.

There are two developments that almost assuredly would cause oil to lose its free-enterprise standing and be placed under complete and permanent government control. If the federal government should impose control over the industry, it will be in the name of conservation, which could be sired by either wasteful practices or a shortage of oil. This, of course, can best be prevented by actually preventing waste and by actually avoiding a shortage of oil, which is the responsibility of the industry's geologists, geophysicists and engineers.

Must Find More Oil

Statistics are convincing that over a period of several years oil has been consumed in greater quantities than it has been found, and at the moment there is every indication that this will continue for some time. There has been a sharp decline in the quantity of new oil found annually during the past four years. The rate of finding oil has fallen despite a continuation of a high rate of drilling wildcat wells. New fields that have been found have been smaller in size than those discovered in preceding years.

Obviously, something is wrong with oil discovery rates of the United States. Many fear that the nation already has found the bulk of its oil fields, and that henceforth it will decline in output as a producer of petroleum. In view of its dependence upon industrial and mechanized activity, this would soon force the country to become dependent upon foreign sources for its oil.

Despite statistics on oil finding during the past four years, there is no proof that this country has exhausted its oil resources. No one knows in any exact or even approximate sense what the discoveries of a year, or even a month in advance may be. There may be no more, one more or a dozen deposits such as East Texas. Whatever the number no man can change. Men of vision, however, may do something about the fact that as yet science has found no instrument or method by which all possible structures can be found.

Despite declining discovery rates, many believe that there is an abundance of petroleum yet to be discovered in this country. If this be true, the question then becomes "How is it to be found?" This is the responsibility that confronts the geologists and geophysicists. It is a challenge to their ability. New tools, new thinking, new efforts, new research and new developments are needed.

Deeper drilling on known structural traps now producing oil is seen by some as offering the quickest relief from the decline in daily productive capacity. This thought requires the adoption of a philosophy of drilling 'em deeper, and the abandonment of any ideas that structural traps should be condemned for deeper production until all sedimentary beds above granite or other basement rocks are drilled.

With many believing that most of the nation's more important structural traps have been discovered by past exploration, numerous oil prospectors think that stratigraphic and sedimentary studies hold the key to future new oil supplies of importance. The opportunities for such prospecting becomes apparent when it is remembered that some of our largest oil pools — East Texas, Burbank, Glenn Pool, Midway-Sunset and many others are of this

Responsibilities Are Thrust Industry's Technical Men

By WARREN L. BAKER, Editor

type. Various geologists have pointed out that numerous oil provinces are located in close association with up-dip wedging out of the porosity in the reservoir rock.

Besides new tools, then, the industry would appear to need creative and research prospecting in place of routine geology and geophysics. This would mean a restudying of all surface outcrops and subsurface data.

Must Produce Larger Volumes

Improved secondary-recovery work is seen by many engineers as another excellent source of adidtional oil. How to procure a larger quantity of this oil, which is known to exist, is a challenge to the ingenuity of the petroleum engineers and production men of the industry.

A quantity of oil of great magnitude already has been discovered that is not producible with current methods. A total of 47 billion barrels of oil have been discovered in the United States, of which 27 billion barrels have been produced and the remaining 20 billion barrels constitutes known underground producible reserves. Assuming a recovery factor of 40 percent, then the oil to be left in the ground under presently known fields after primary recovery efforts will be about 70 billion barrels, which is 2½ times the quantity of oil the United States has produced since the first oil well was drilled in 1859.

It is the engineers' problem to get as much of that oil as is economically and physically possible. The production phase of the oil business must enter a new era, the success of which depends upon the engineer. Secondary recovery should play an increasingly important role in coming years. There should be more and improved water flooding and repressuring of sands than ever before. There also should be more and better pressure-maintenance applications than known heretofore. As the question of producing enough oil becomes more critical, reconditioning activities and completion practices must get more intensive studies so they can be made more efficient.

Again, these are things that men of vision may do something about. And as with discovery efforts, new tools, new thinking, new research and new developments are needed.

For the industry's geologists and engineers to successfully meet the new conditions and heavy responsibilities being imposed upon them, greater attention to creative and research efforts appears necessary. With a plentiful supply of oil available in the past, too much of the industry's research efforts have been devoted to the finding of new products that could be made from oil, and not enough attention has been devoted to improving of discovery and producing methods. This is not to say that advancements have not been made in finding and producing fields, for there have been amazing improvements in the design of equipment and in the development of improved operating technique. This has been particularly true in recent years. But such progress must be continued and on a more intensive scale if present indications of an oil shortage become an actuality. New tools, new methods and improvements in existing equipment and practices will be sorely needed.

If there is any doubt as to the ability of the industry to maintain an adequate supply of petroleum through the years ahead—and we all realize there is such a doubt—then thorough research on many of the fundamental questions concerning petroleum cannot start too soon. An industry that spends billions of dollars each on exploration, drilling and producing can well afford to set aside a small percentage of this money in an attempt to make the effort more effective.

In the past, the American Petroleum Institute, some universities and oil concerns have had research programs on various problems. But there has not been enough work of this kind. In this respect, it is encouraging that the past month has seen the Pennsylvania Grade Crude Oil Association commence a study of production practices which it is hoped will lead to an increase in the amount of crude oil producible from known fields in that region, and that the State of Arkansas has begun a study of the possibilities of secondary recovery projects in older fields.

While much oil has ben discovered by purely random drilling and careless producing methods, and much more will assuredly be discovered and produced in that fashion in the future, yet the only rational way to make available to society the oil and gas which now lies undiscovered and non-producible in the ground, is through the application of scientific methods and reasoning. In the words of A. I. Levorsen: "It is the one approach which offers reproducible results. A correct scientific principle applied to the discovery or production of oil and gas can be applied repeatedly in Texas, to the United States, or throughout the world—this year, next year or a hundred years from now. It becomes a foundation upon which we can build indefinitely into the future."

Oil is so important to military, industrial and civilian life that the industry must not fail to meet all requirements. Steps must be taken now, however, to solve the problem of oil sufficiency. Tomorrow may be too late, as the fruits of any geological or production development will be reaped with a delay of several years.

It is both the public and industrial duty and responsibility of engineers and geologists to see that the United States continues to have an adequate supply of petroleum as long as physically possible. They must find the answer that will continue the remarkable scientific progress of the past. They must seek improved ways to locate oil in the billions of acres of favorable geological territory. They must develop means of drilling wells deeper and more economically. They must devise cheaper and more efficient lifting methods, ways of producing a larger percentage of the maximum volume contained in the sand, and means of giving new producing life to supposed exhausted fields. This is the challenge that confronts petroleum technologists today. In view of exceptionally large consuming rates it is of greater importance now than ever before. The situation imposes heavy responsibilities, but also opportunities of great magnitude.

Big-Inch Pioneers New

Design, construction and operation of crude-carrying pipe lines all raised their sights beyond known elevations to cope with special problems introduced by 24-inch system

BY ELTON STERRETT, Staff Writer

ENGINEERING, which is just a shorter term for systematized cooperation, built the Big-Inch in record time, against an array of natural, material and legislative obstacles which would have deterred a less ably managed, or less urgently needed enterprise. Competing with munitions and ships for a share of the nation's steel, with the Army and Navy for men to run the machines which alone could handle the heavy joints of pipe, and with sectional and industrial organizations for the right to existence and public support, Big-Inch has won much public acclaim as another typically American big job, another "super-colossal" undertaking, another smashing of records.

Big as the line is, immense as will be its contribution toward easing the oil situation for the Atlantic Seaboard and our forces overseas, heavy as will be its draft on Southwestern oil production, it is as an engineering project that Big-Inch will have the most influence on the oil industry and in particular on its pipe-line activities. From the first aerial survey to the backfilling of the last station manifold, Big-Inch has pioneered; forced pioneering because the big line introduced problems of location, ditching, weight-handling and protection unprecedented in pipe-line history.

The equipment used by the various construction spreads had to be strengthened, counterweights on boom-tractors increased to maximum clearance dimensions and then—to keep both treads on the ground—drums of pipe enamel, sandbags and even logs were chained outside the standard weights in a frantic attempt to cope with the overturning moment of the long lifts when the terrain got bad.

Equipment for the line itself, from the almost endless miles of pipe turned out for the tube itself, through the long list of operating units, such as motors, pumps, valves and strainers, and on through the auxiliary equipment such as scrapers or go-devils, required strengthening or redesign. Motors and pumps, for example, each formed an order too large for any one manufacturer to handle with existing shop equipment without slighting or sidetracking other equally urgent war production. On both these items separate manufacturers evolved their own designs, adhering to rigid overall specifications so either finished unit could be placed on any foundation and tied in with adjacent equipment there to operate as though part of the original set-up.

Valves, likewise, had to be designed from the start, as previous units of 24-inch-line size had all been made for gas service. Here, war demands on auxiliary equipment imposed a hardship on the men in the stations. Due to limitations in available motors, it was necessary to hand-operate the valves, even on the 24-inch line, where nearly 300 turns of the hand wheel are required to go from one extreme of gate travel to the other. Rising stem valves, used as suction units on station pumps, were set vertically, with platforms to afford access to the wheels. For throttling service on the pump discharge, to simplify the operator's task of maintaining exact discharge pressure as required by suction demands of the next station down the line, the valves were placed horizontally, with a spur gear reduction between stem and hand-wheel stub shaft. Protection of the units against overload, overheat or undue pressure drop is electrical, mercoid switches being used on each station to shut off the power in case of fluctuation beyond set limits.

Operation of the line differs from that of the usual multi-station set-up in that at no stations are tanks floated on the line to absorb differences between pumped and received rates. Each station on Big-Inch is dependent on those before it for fluid. The suction of the low-pressure pump must be filled with oil under pressure from the station 50-odd miles back down the line before it can assume its share in repressuring the throughput for for its next 50-mile travel to another set of pumps. And if one unit in one station goes off or one station is shut down by severe electrical storm disturbances, protective units both ways from the affected locality go into action, and it is necessary to operate under a partial capacity set-up until normal conditions are restored.

Besides the need for hand wheeling of the gates, already cited, steel shortage led to designing the pumps of non-critical metals with the result that the high pressures are carried by pump bodies of cast iron, instead of alloys with higher tensile strength. Steel shortage also enforced the use of creosoted wood poles for all electrical substation supports, the transformers, lightning arrestors and all high-tension equipment being carried on wood supports in which the only metal used is that for fastenings.

Another change from usual practice resulting from steel shortage was the temporary delay in laying dual river crossings on many of the 30 major and 200 minor streams on the route. Only one line was strung across each of these streams, pending ability to secure the required additional pipe without depriving other war industries of steel.

Construction Highlights

To provide access to the right-of-way for all equipment, and to provide suitable grade for the ditching machines, completion of the ground survey was followed by clearing and then road-building gangs. In many instances the clearing, done by bull-dozers, was extended to include the completion of the levelled strip on which ditchers, stringing trucks and finally welding and coating tractors would operate. Due to the diameter of the line, such operations included the topping of sharp rises and the filling of equally narrow ditches, to prevent the formation of sharp vertical bends in the big tube, and to eliminate the need for welding in formed sharp bends at these points. Relieving the profile of the line in this way also simplified the proper spotting of slack as the pipe was lowered into the trench and anchored in place with backfill.

Stringing gangs used more equipment per foot of pipe strung than on any like undertaking. A stringing gang, through the Pennsylvania mountain country, required 12 to 14 trucks, 3 or 4 tractors, and a pair of unloading cranes. With cars of pipe spotted on sidings which in places were as much as 35 miles from ultimate line location, operations of the stringing gang some-

Pipelining Methods

times approached that of a railroad operating over mountain ranges, with tractors spotted at steep grades or bad stretches to help the trucks over the bad going, when the tractor would cut loose and the truck proceed under its own power to the next "pusher" section. Due to the handling of the line in 40-foot mill joints, curves on the access roads frequently had to be carried far beyond those available on the log rods, laterals and other existing routes utilized in carrying the pipe to the job.

On some of the tough going over slopes of the steeper Appalachians, the line was strung joint by joint with tractors, the length being balanced in a chain sling—to prevent slipping downhill while en route—and one end hand guided and supported as the pipe eventually reached the spot where it was to be welded into the line. None of the slopes negotiated, however, was steep enough to require pipe anchors when the line was placed in the trench.

Welding technique followed that developed for large gas lines. Two welders, working in opposite quadrants, were the rule on bell-hole or stovepiping welds, the tacking usually also being performed by both men welding simultaneously. Three beads were specified, with four being permissible. Due to the gain in time in the amount of cleaning and checking required for the four- as opposed to the three-bead system, very few four-bead welds were run outside of river-crossing work. On firing-line welding, the stringer bead was run up with 3/16-inch rod and 200 amperes; the second pass was with ¼-inch rod and 325 amperes, the weld being completed with 5/16-inch rod and 375 to 400 amperes. In the phraseology of the welder, the completed weld is "penny wide and nickel high." Random welds were cut from the finished line with a torch and cut into customary test coupons, a beveling machine and torch being used to cut new bevels on the cut pipe and permit reuniting. Bell-hole welding or stovepiping was largely done with welding machines of 200-ampere capacity, the rod used being 3/16-inch for all passes.

Firing-line lengths were handled by two tractors in sections up to 4 joints in length, over smooth terrain, though 3 was the rule where the going was rougher. It was found that the comparatively thin-walled pipe, even though of large diameter, was highly resilient, and tended to vibrate like a long spring when carried over rough ground, and to set up oscillations which would crimp the metal at nodal points if the vibration were not checked quickly. Cat operators transporting the long strings became very skillful with their drum operation in snubbing out this whipping before it could become serious.

Handling long sections of firing-line pipe, as for river-crossing drags, required multiple tractor carries, with the units usually spaced at intervals of not more than 50 feet. For such carriers bare pipe was handled with wire-line or chain slings, coated pipe in broad belting slings.

Pipe Protection

The entire line was given two coats of enamel and a wrapping of asbestos felt. Most of the protective coating was applied after completion of the welding operations, with the machines riding the line on artificial loops of high pipe introduced through the use of boom tractors and wheeled dollies, with slings being used ahead of the machines when traversing steep slopes. Holiday detectors checked the prime coat for misses, with a standard pipe-pit gauge being used along the pipe to determine the thickness of the coating being applied.

Cleaning and priming was done with a combination machine, a second wrapping unit following closely behind whenever possible to avoid the necessity of cleaning the enamel of accumulated dust or mud when an interval seperated units. Special water enamel was used on the line through swamps, river beds subject to frequent overflow, and other spots where corrosivity was indicated to be high.

Testing

The first leg of the line, Longview to Norris City, was tested by pumping through the system a batch or slug of water some 75 miles in length. This slug was taken from the Sabine river through a specially built loading system, most of the water eventually reaching the Mississippi at the crossing of that stream near Thebes, Illinois. Due to inability to maintain the steady forward progress of the water, considerable intermixing of water and the following oil face was encountered. Much of this was attributed to the fact that the water would tend to settle under the oil near the interface and then oil would overrun it when pumping and testing was resumed.

The second leg was given a test with compressed air instead of water, each section being isolated by adjacent pairs of line gates and the intervening section charged with air by batteries of portable compressor units. Testifying to the high skill of the welders and the efficacy of welded joints, not one of the 183,000 welds in the 1388 miles of line leaked under test. Need of such a pressure test, however, was emphasized when a leak developed at a point where the operator of a dragline backfiller had misjudged his travel and had gouged a groove into the metal of the line, with resultant leakage under operating pressures.

Line Operation

Apart from the fact that the line is designed for unit, instead of segmental, operation, there is little other than the quantities handled in the running of the Big-Inch to differentiate it from many lines through which the handling of batched crudes is common practice. Contamination between various analysis products on the big line is less, on a percent basis, than is considered excellent on smaller lines—this being probably due to the lessened pipe wall swept over per barrel per mile as compared to lines of half the diameter.

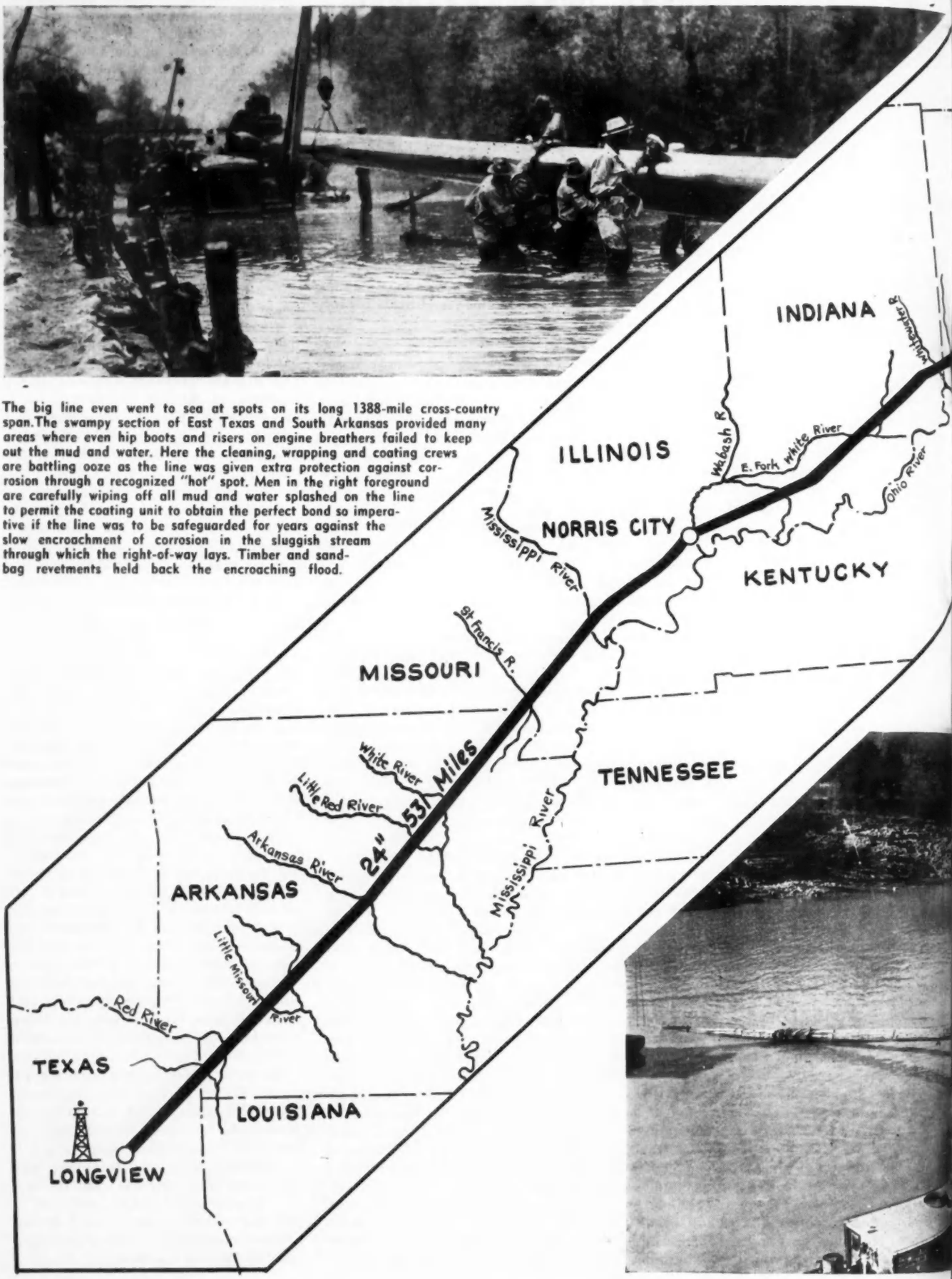
Batches, usually arranged in multiples of 240,000 barrels, take only hours to put into the line or, at the receiving end, to separate into designated tanks or waiting tank cars, where such quantities would run for days, or even weeks, with small-diameter systems.

Dispatching and operation is over teletypewriter installations in each station, with telegraph connections between terminals and the main office in Cincinnati. Telephones between stations supplement the tape messages, though shortage of available lines and inability to obtain clear circuits sometimes puts the station on a party line with no means of clearing the line of neighborhood conversationalists for an emergency.

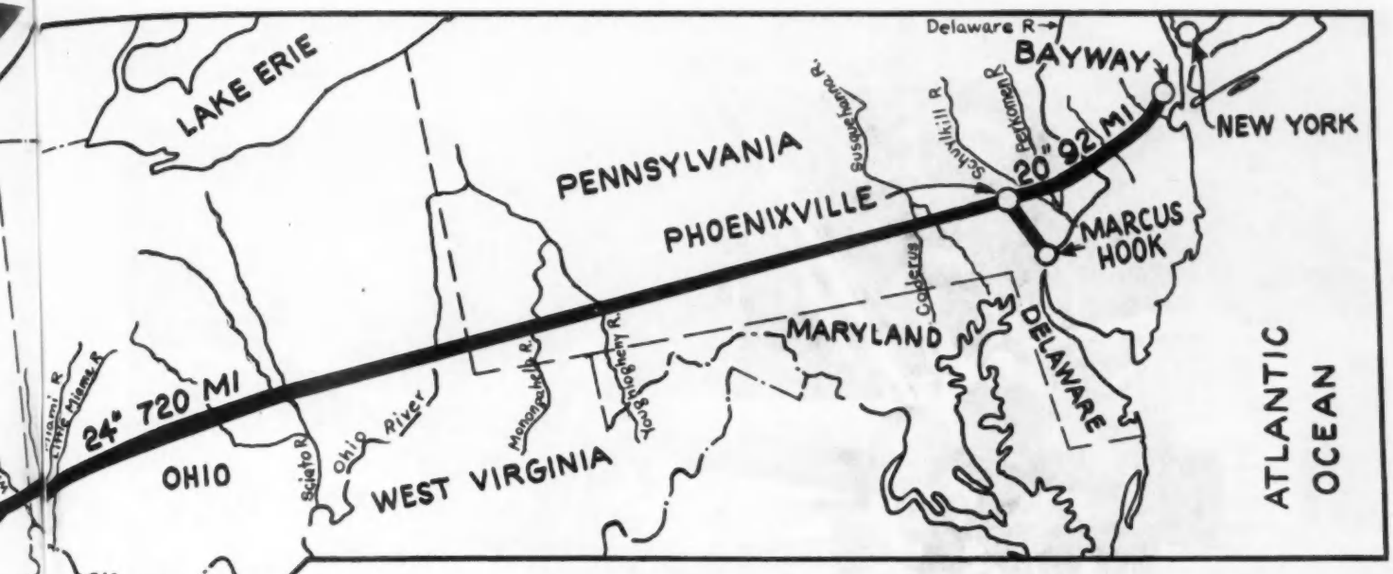
The close relation between stations, and the ever closer regulation of over- and under-pressure settings of the mercoid controlling switches, makes all other systems of communication lag behind the sensitive line-pressure indicating devices. The station operator feels, through his discharge-head gauge, the operation of the station ahead of him, and hears, through change in motor pitch, any drop in pressure being given him by the station or that section of line closer to the oil source.

Big-Inch statistics teem with big futures: 360,000 tons of pipe; fluid contents, 3,840,000 barrels; motive power, 78 motors, totalling 117,000 electrical horsepower; daily throughput, in excess of 300,000 barrels per 24 hours; fluid travel, 100 miles per day; but the biggest figure of all in the completion of the line is one which cannot be expressed numerically — the engineering, and the directed ingenuity.

The big line even went to sea at spots on its long 1388-mile cross-country span. The swampy section of East Texas and South Arkansas provided many areas where even hip boots and risers on engine breathers failed to keep out the mud and water. Here the cleaning, wrapping and coating crews are battling ooze as the line was given extra protection against corrosion through a recognized "hot" spot. Men in the right foreground are carefully wiping off all mud and water splashed on the line to permit the coating unit to obtain the perfect bond so imperative if the line was to be safeguarded for years against the slow encroachment of corrosion in the sluggish stream through which the right-of-way lays. Timber and sandbag revetments held back the encroaching flood.

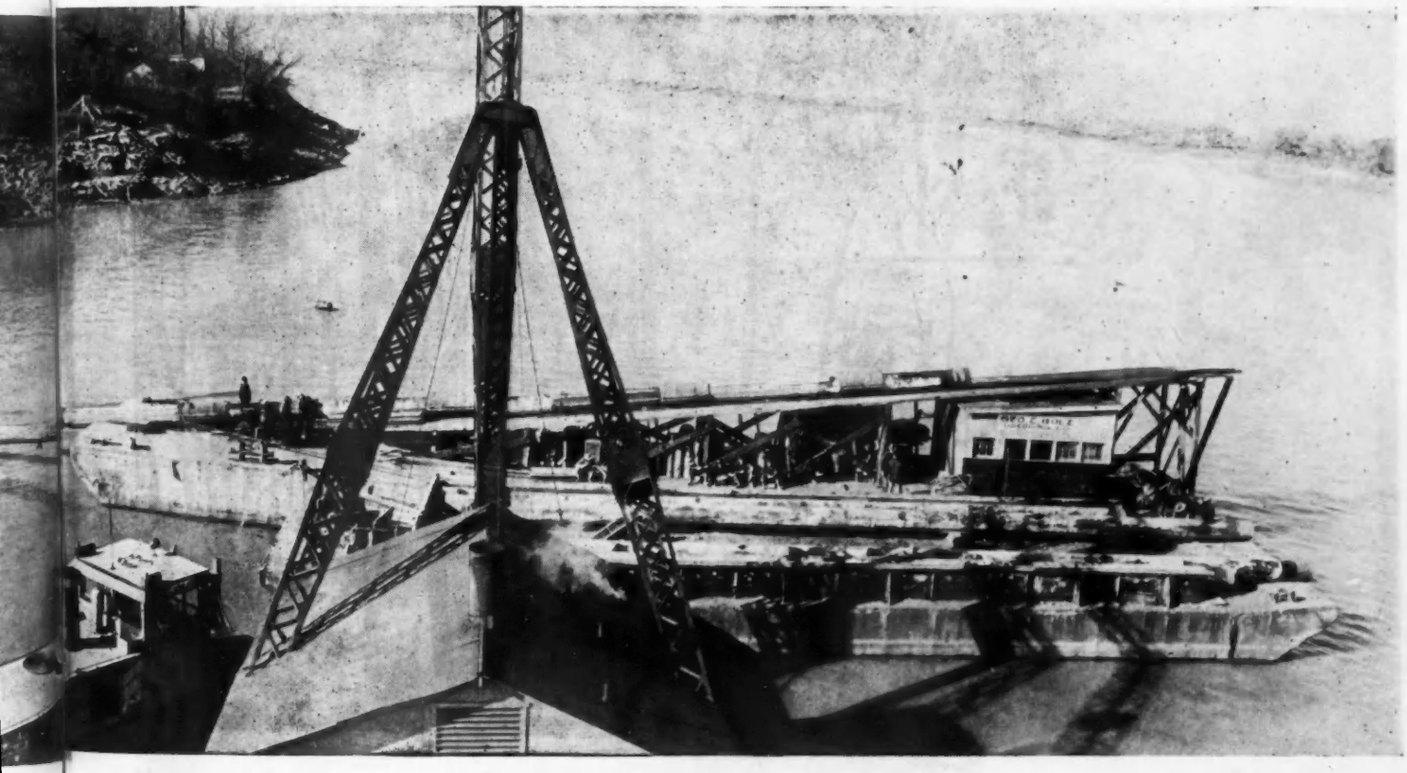


BIG-INCH TERRAIN



Rivers, streams, swamps and mountains laid athwart the route of the big line, but each natural obstacle yielded to the drive to put the line through and begin functioning as the Nation's Lifeline. From the oilfields of East Texas, the line made but minor concessions to difficulties of terrain, following a direct course to the Norris City, Illinois, terminal of the first section, and then curving only slightly to pick most adaptable contours as it swept on east across the lower borders of Illinois and Indiana, hurdled the serried hills of Ohio, crossed the Ohio River, and shortly thereafter altered its general direction only to make the most direct ascent possible of the mountains of the Appalachian range. Surveyed first from the air, ground crews were concerned mostly with the selection of station sites at proper intervals, and with the detail of laying out the route to be followed by each of the many gangs required before the plan became a pulsating lifeline.

The nation's biggest pipe line met—and crossed—its biggest river. Not even the Mississippi, in flood, could more than slow the progress of the big line. Here an adaptation of the scheme already successfully employed for stringing gas lines across the river served the 24-inch as it was welded on the deck of the derrick barge, lifted to the inclined ramp and tied in with the end of the line already laid, and the next section slowly fed down the slope as the barge made its way farther into the stream. Separate derrick barges, with supporting bridles prevented the line from dropping too rapidly to the river bed, and maintained a gradual lowering speed until the entire river traverse had been completed.



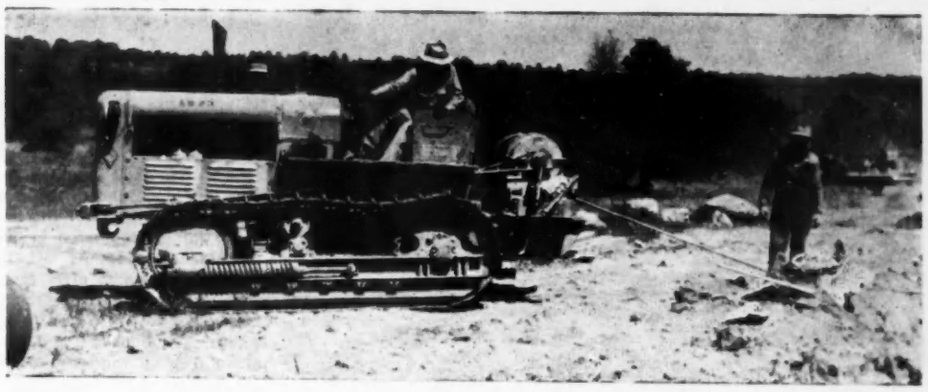
Mud and dust hindered early construction of Big-Inch, then gave way to handicaps of snow and ice as the line went eastward to climb the hilly terrain of the Alleghenies in mid-winter.

Ear-flaps, mittens and fur-lined coats help take the chill out of winter pipelining up the steep slope of Tuscarora Mountain, shown above, where the line made its steepest and longest climb. At the top of Tuscarora the line was cribbed to allow work space for the welders, the warm vapor condensing in the end of the line being steam generated at the weld just below. On steep slopes such as this, wagon-mounted welding generators were snaked up by the pipe-handling tractors, and parked carefully against boulders to prevent runaways.

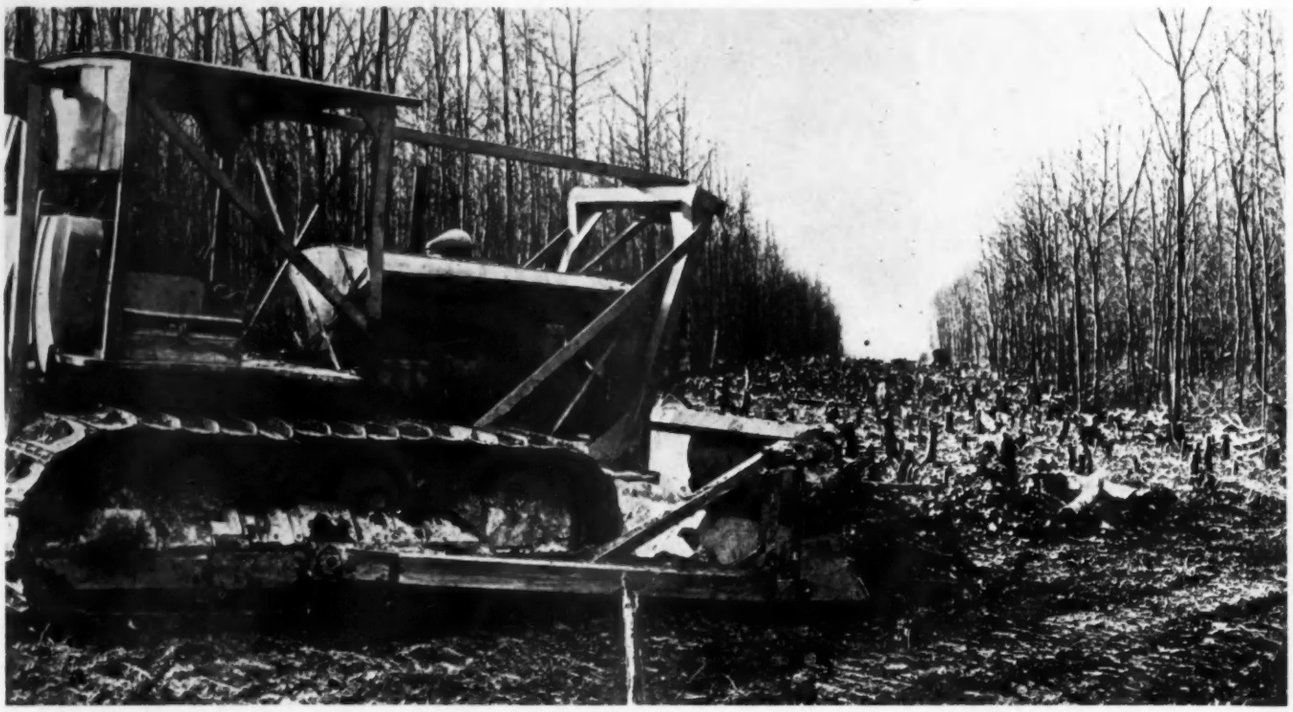
In the snowy scene below, the line has cut straight down the slope in the foreground, driven straight across the intervening valley, and made another bend to permit it to go straight up the farther slope. It was desired to take each slope in a straight line from the base, so as to expose no line to possible side thrust of a landslide or mass earth movement. Firing-line sections to the capacity of the handling equipment permitted construction to go forward with a minimum of hazardous work over the trench under such conditions.

Through forest and farm, bottomless swamp and rocky cliff, the line sampled nearly every kind of going possible, especially in the eastern half of the country. In clearing the right-of-way it was necessary to use all kinds of equipment—even reverting to draft power used by the pioneers who first saw the terrain traversed. A yoke of oxen, clearing logs from the line site after axemen had felled the trees, makes way for the stump-shooting gang but asks no favors of the mechanized units following close at the end of the long trace chain.

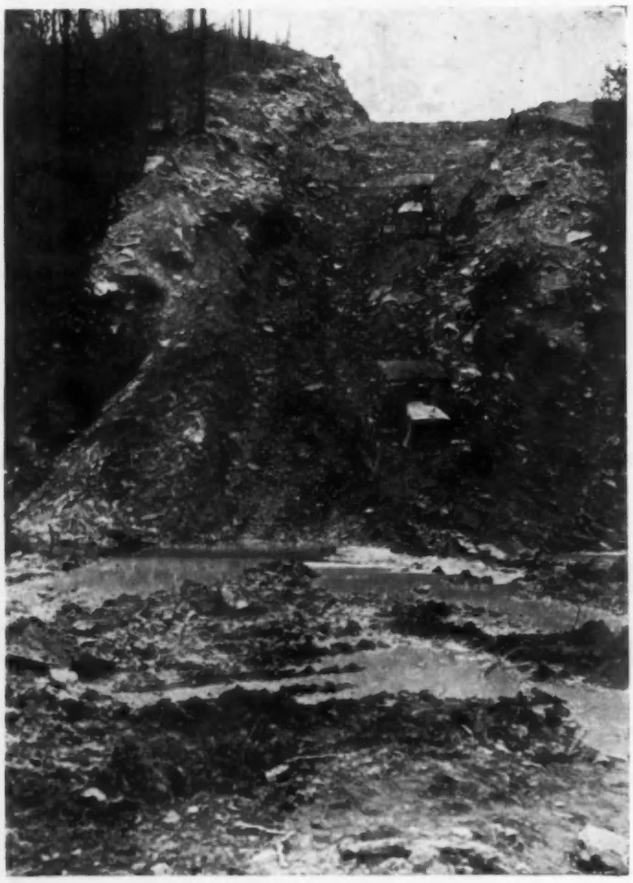
The larger trees cut, felled and dragged aside, a crawler type road building machine uproots and shoves aside smaller growth. One man and modern equipment doing the work of many in readying right-of-way for the road-builders and surveyors who will stake out the ditcher route.



Shooting was used to clear many of the larger stumps from the ground, or at least to shatter their grip on the earth, after which tractors, winch-equipped, made quick work of extracting the stubs and dragging them into the clear.



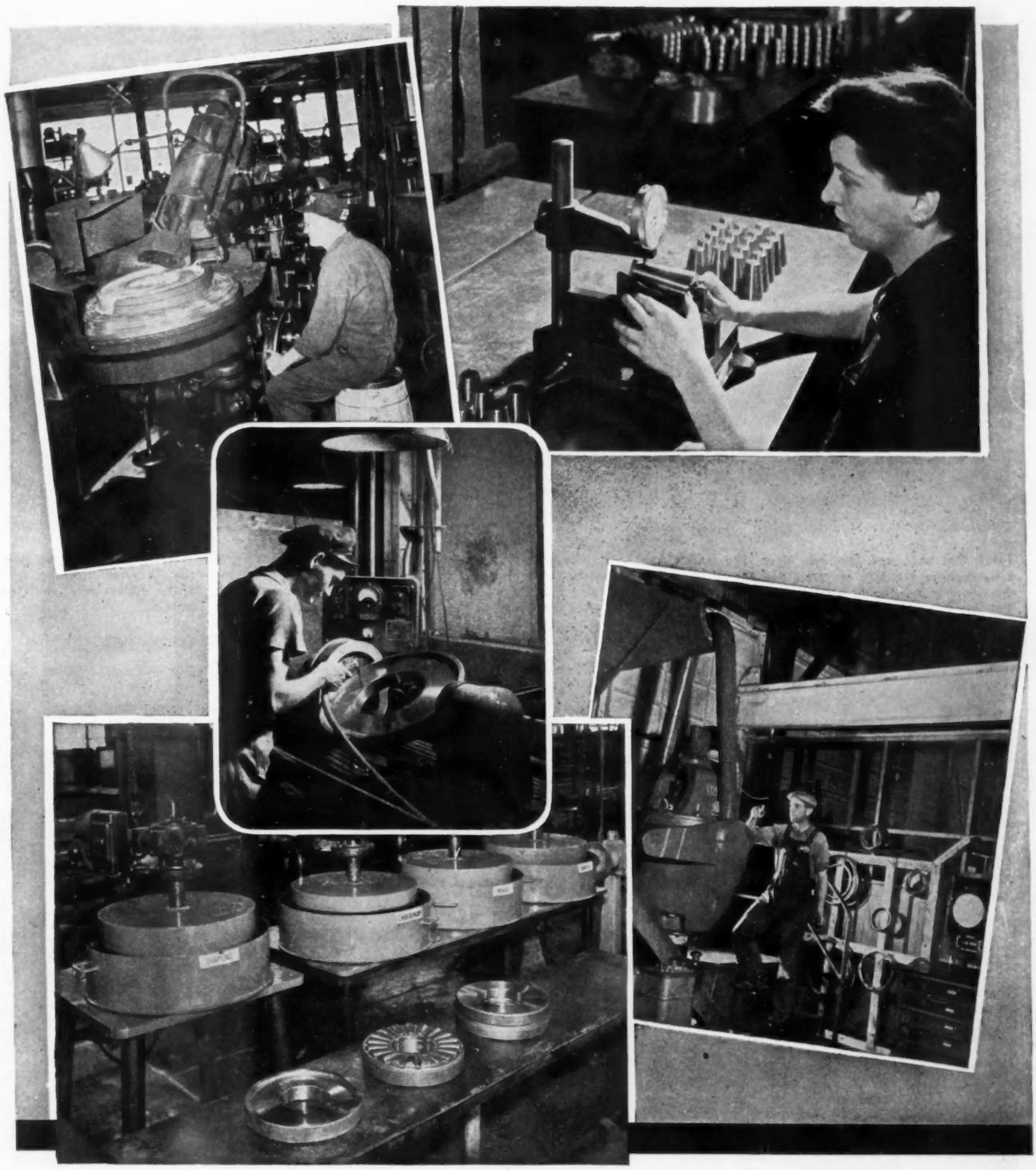
After axemen had felled the second growth through this level strip, tractor-mounted equipment cleared the ground of stumps and prepared a thoroughfare not only wide enough for the ditch and spoil pile, but also to provide for the shuttling of traffic required for the many operations connected with the job. This machine carries a specially braced headframe and car structure to protect the operator from falling trees as the unit is forced ahead into standing timber.



The ditching machine was given what amounted to a roadway over which to run as it cut the trench for the pipe, the grade of the bottom being largely regulated by the elevation of the surface over which the machine operated. At left, the right-of-way pitches sharply downward to a bit of swamp after topping a sharp rise, and bulldozers grade a wide roadbed down the rocky slope, utilizing earth gained at the top of the hill to fill in and provide a working grade across the quagmire. Above, a bulldozer had topped a small hill and is using the spoil to make a wide roadway to accommodate mechanical units to follow.

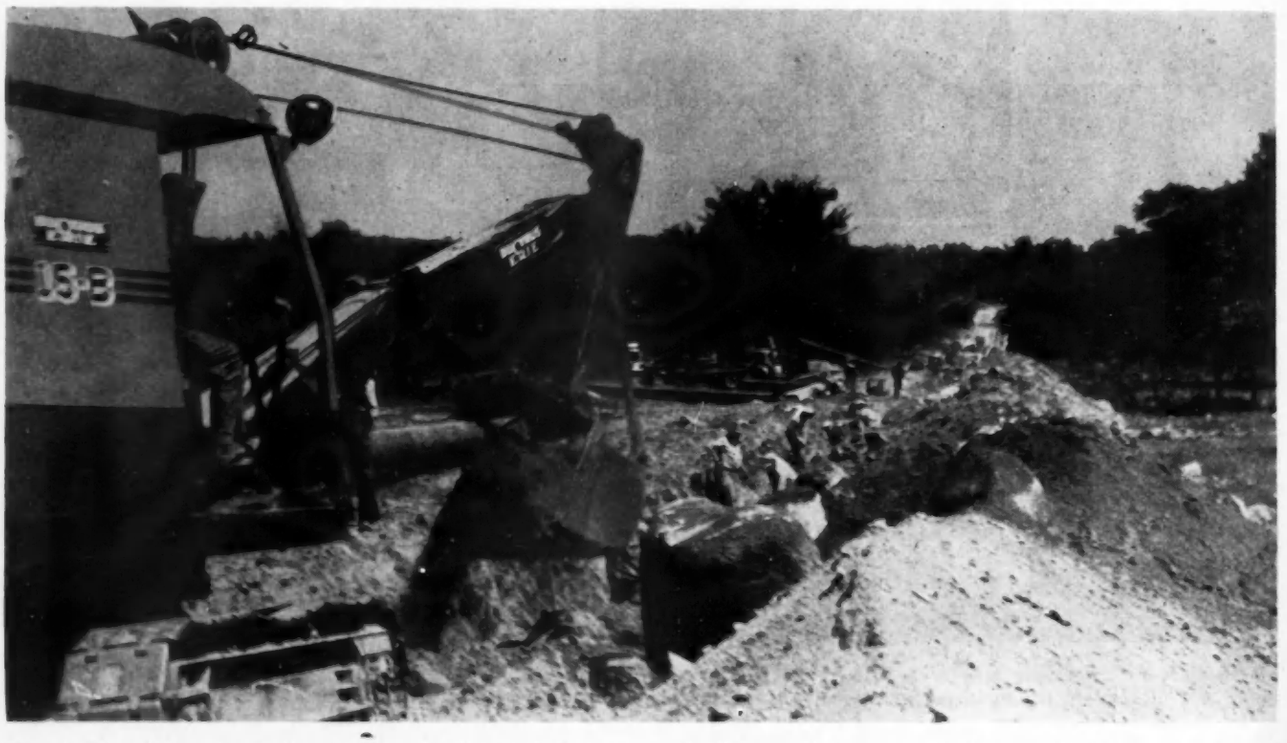
PREFER IDEAL SWIVELS

"Reg. U. S. Pat. Off."



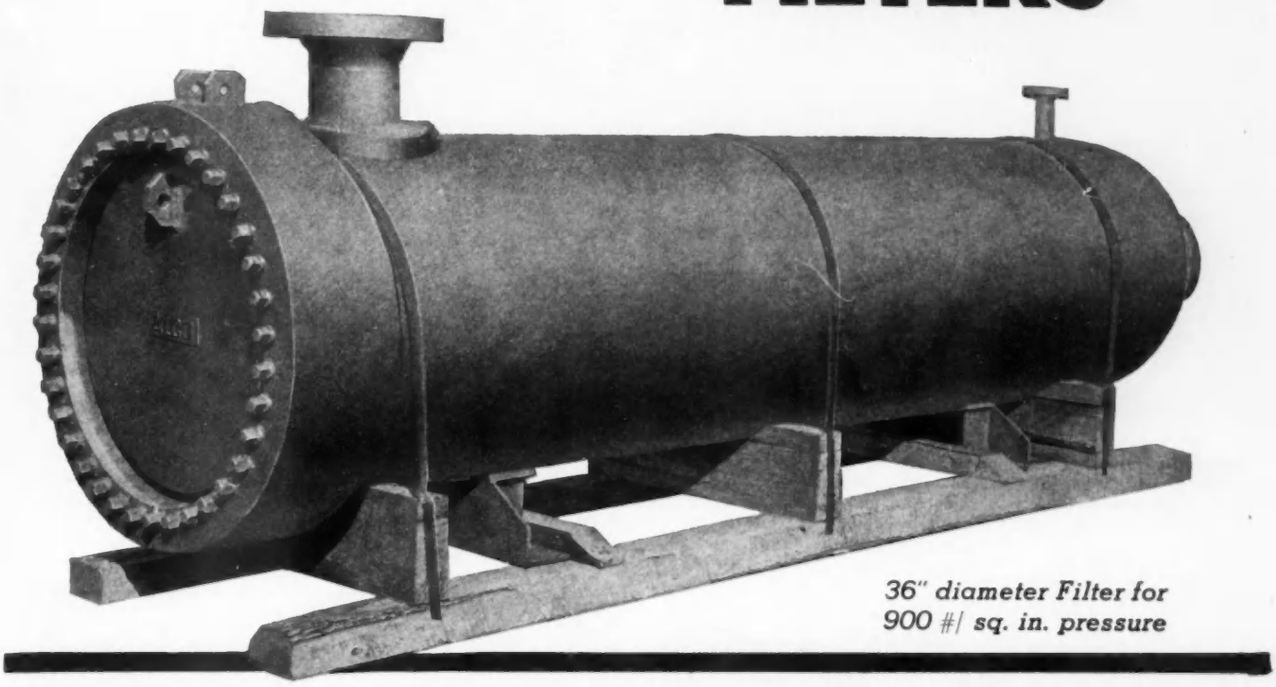
Scientifically designed, precision manufactured and thoroughly tested in our plant, each swivel must meet certain rigid operating requirements before released for field duty.

Three feet wide and four feet deep, the trench for the line involved moving more than three million cubic yards of material, assuming rigid adherence to the size specified for the ditch. All this material, wherever terrain permitted, was moved mechanically, ditching machines with three-foot cutters being used except where rock prevented their use. Operating on the smooth roadway prepared for it, the ditcher piled the spoil likewise on the cleared section, to simplify the return of the dirt to the trench after the pipe was laid.



When boulders laid scattered through the earth, the trench hoe was employed frequently to remove the loosened dirt from around the rocks, permitting them to be dragged from the ditch, or, if too large, to be drilled and shot into fragments which the hoe or a winch truck could lift. Pick-and-shovel gangs were required for working around the boulders, though only a small part of the earth moved was actually thrown from the trench, the mechanized equipment accounting for transfer of soil unless too wet to handle.

ALCO PIPE LINE FILTERS



36" diameter Filter for 900 #/ sq. in. pressure

THE INSTALLATION OF ALCO PIPE LINE FILTERS AT YOUR PUMPING STATIONS WILL PROTECT YOUR PUMPS AND INSTRUMENTS

1. Alco Clamp Ring Cover Attachment permits easy and rapid opening of Filter for renewal of filtering medium
2. Filter cage removable from Filter
3. Design of filter cage permits easy removal of the filtering medium and rapid re-filling
4. Annular space between filter cartridge and Pipe Line Filter shell permits even distribution of the incoming product over the filter area
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Write for Bulletin No. 1033

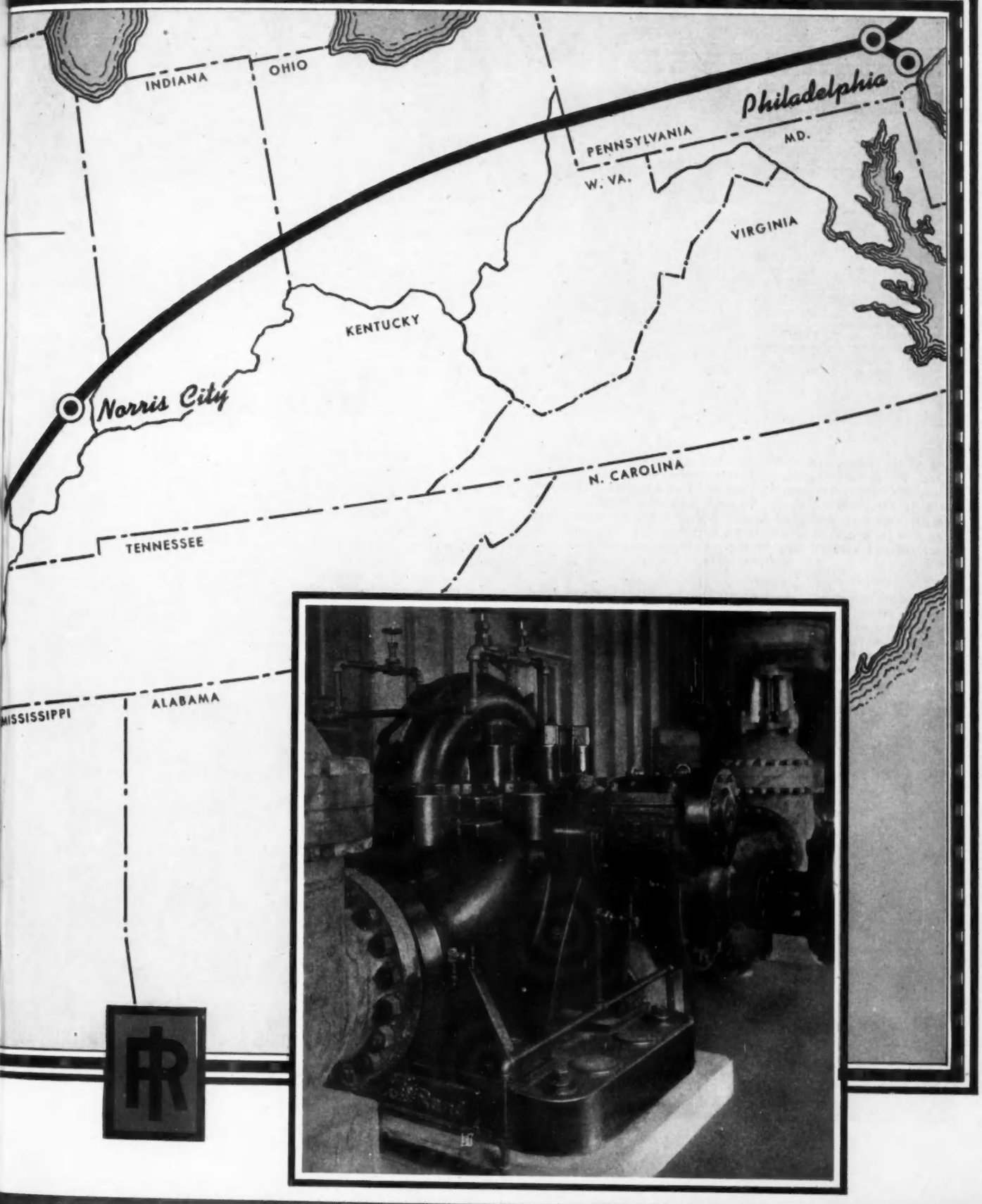
AMERICAN LOCOMOTIVE COMPANY
ALCO PRODUCTS DIVISION
30 CHURCH ST., NEW YORK (8), N. Y. **DUNKIRK, N. Y.**

A crawler-type trencher widening a ditch at the entry to a road crossing. This afforded clearance for gang operating the boring machine, permitted proper shoring of the feed mechanism, and permitted the main and tie-in sections to be aligned with the ditch and quickly clamped in position for welding operation. Supported on skids spanning the ditch, the line is already completed up to the start of the crossing, with the short section of firing-line pipe spotted for dragging in and tying to the completed portion of the line.

At road crossings, after the trenching machine had carried the ditch as close as possible to the paving, hand work was necessary to carry the bottom deep enough to obtain the required cover between pipe casing and road metal. Frequently, due to weather or other delay, welding gangs were right atop of the crossing crews before they could move earth enough to complete the ditch. Such crossings, after being dragged through the hole under the road, required bell holes for the final tie-in welds.

Quicksand and caving banks added their quota to the amount of material to be removed before the pipe could be laid. Here a watery muck fills the bottom of the trench nearly as fast as it can be shovelled and dipped out, and the specified 36-inch trench was nearly three times proper width before required depth could be maintained until the pipe could be laid and anchored in place with sufficient backfill to insure against its being floated by the queasy mass of water and sand.

LIFE LINE


INDIANA
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MISSISSIPPI
ALABAMA

Many of the ridges traversed by the line, although showing little or no rock on the surface, were solid stone under only a few inches of topsoil, and required drilling, blasting and rock handling to open the trench to the specified depth. On such work the topsoil was first carefully excavated and piled to one side of the right-of-way, later to be used for a cushion or pad in the bottom of the trench and atop the coated and wrapped pipe, to prevent contact between sharp rock and pipe walls.

Portable compressors and wheel-mounted drilling machines were used when the entire ditch bottom required drilling and blasting, with hand-operated air hammers driving the drill steel for clearing projecting rock from the sides of the cut after the initial shooting had removed most of the rock. Loading of the shot holes proceeded closely behind the drilling crews, with the actual shooting being reserved for a meal-time operation. Much of the initial blasting was done with electric blasting machines, while the spot shots required to break down projecting shoulders were largely fuse-fired. Through most of the rock work on the first section of the line, dry weather was responsible for severe dust conditons that complicated the work of drilling crews.

Where the rock underlying the thin topsoil was not continuous, such as shown below, the task of blasting a clear trench for the line required more drilling and as much explosive per mile as did the opening of a ditch through solid formations. Here the rock and earth were so mixed that segregation of sufficient rock-free soil for bedding and packing the pipe required many man-hours and careful placing of line and pad to insure against possible contact between projecting shoulders and pipe wall under expected shifting due to expansion and contraction changes in line length under different climatic conditons.

Every Welding Inch is a Big Inch

What makes Big Inch so big? Pipe is 24-inch diameter (biggest oil line ever built)—1251 miles long—capacity 300,000 barrels daily (equal in service to 25,000 railroad tank cars or 150 10,000-ton tankers)—crosses 200 streams and 30 rivers. It's one of our biggest accomplishments on the home front.

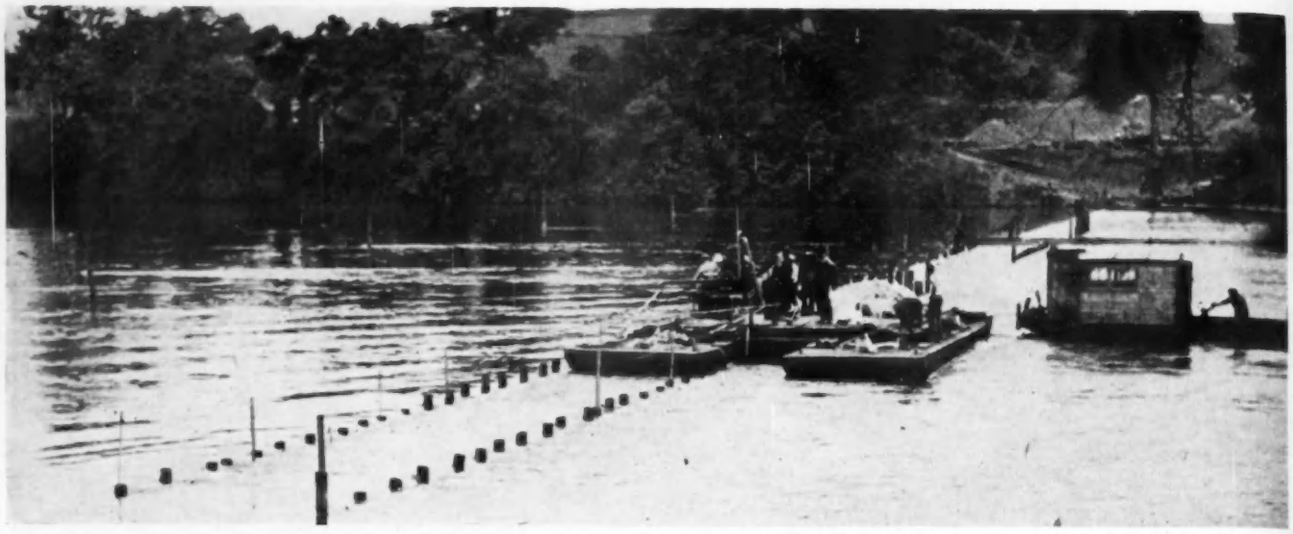
Isn't it typical of the way the Oil Industry has always done things with welding?

You bet! Their big conversion started in 1929 with Lincoln's development of the "Fleetweld" Electrode, setting new standards in weld quality and welding speed. In the construction of tanks, pipe lines, machinery, casing, tankers, refinery towers . . . oil men quickly swung over to arc welding . . . learned that every welding inch is a big inch.

And did you ever notice—on "Big Inch" and on welding jobs throughout the oil country, the name "Lincoln" is as native as brown shirts and pants? Seems like all their welding machines and electrodes are Lincoln.

Sure . . . because Lincoln's oil country Welding Engineers are everywhere . . . lending a hand in making every welding job bigger, better and cheaper.

THE LINCOLN ELECTRIC COMPANY, CLEVELAND, OHIO

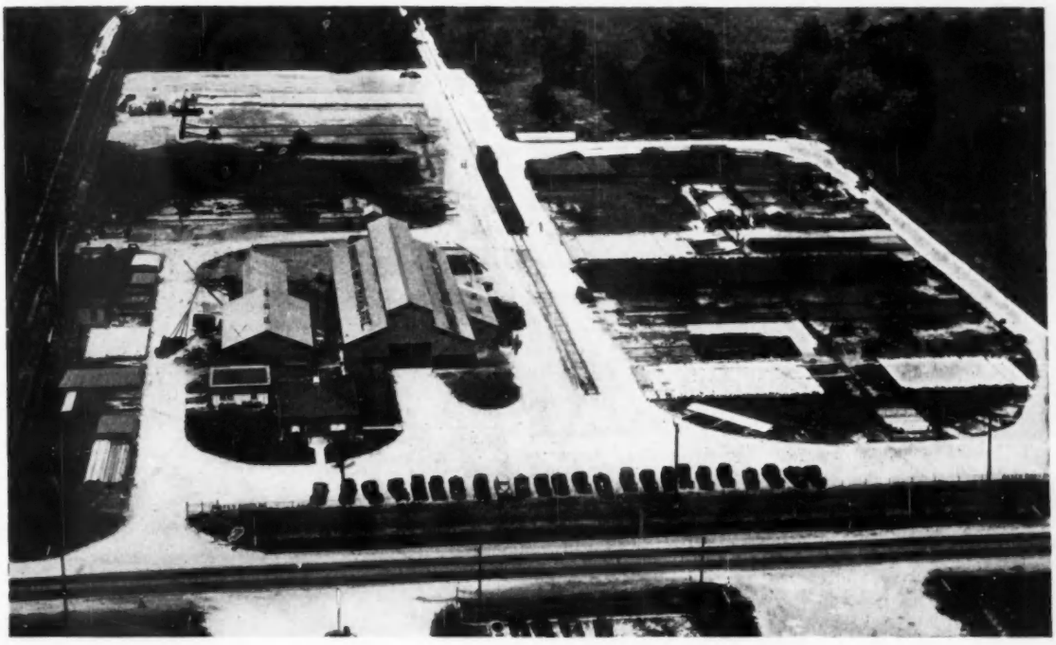


Not until the line had crossed the alluvial plains of the first leg of the survey, plunged beneath the mighty Mississippi, and skirted the foothills of Southern Illinois and Indiana did the nature of the river bottoms change from mud and silt to hard rock. Streams in the valleys between ranges of the Appalachians have hard rock beds, and the trench in which the pipe was to be laid had to be blasted below the river beds in such instances, to protect the pipe against severe strain or possible displacement by flood currents. To cut the trench through the solid rock was a job for power drilling rigs, utilized to set parallel rows of light-weight pipe at the desired width of trench. The pipe, held in alignment by the sides of the bore holes, reached just above water level, and appeared as a series of stakes traversing the stream. All boring, pipe setting and preliminary work was done from barges, cable controlled from shore, for the larger streams.

A high-pressure stream of water, drawn from the river by a portable pump unit, was forced down the inside of each shot-hole pipe to insure its being cleared of silt and debris just prior to the operation of loading. The cartridges, each with detonator, were slipped singly into the pipes until the desired amount of charge had been built up, and then the wires were tied into the stranded group going ashore to the firing point. Stakes, tied to nearby pipe ends, carried the wiring above water level, and served to warn trespassers and thus protected the line of wires from accidental breakage. The charges were tightly tamped within their shot holes to confine the the explosive force to the rock.

The Big-Inch used big "sticks" of explosives, as shown at left. The cartridges were 5 inches in diameter, 24 inches in length, and weighed 25 pounds. They were 60 percent gelatin dynamite, arranged for electrical firing in the shot holes.

PUTTING PERMANENCE IN PIPE



MAYES BROTHERS

INC.

PIPE CLEANING, COATING AND WRAPPING

"Any Coating and Wrapping Specification"

HOUSTON, TEXAS

Complete Reconditioning Service for Old Pipe

Explosives were handled with due respect throughout the line operations. For hauling across the frozen terrain of the Appalachian section, a sled was constructed, carrying a sturdy, steel reinforced house. At each of the corners short pipe stubs, projecting upward from the welded sled runner, served to fend branches or even heavy timber away from the wooden structure, and to protect the box from impact against right-of-way debris.

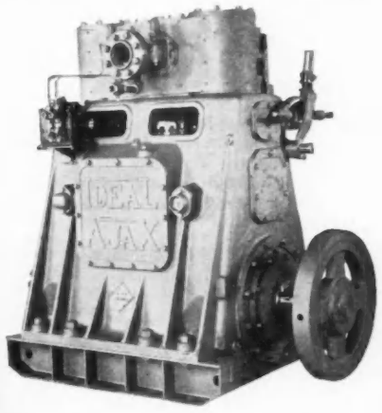
An explosive engineer forces home the plunger of a blasting machine to set off a big "charge." Safety "tepee" of 3-inch heavy timbers houses him as he fires and observes results.

Largest single shot used to blast a river-crossing trench, shown below, consisted of 8 tons of explosives, the equivalent of 4 of the 2-ton blockbuster bombs now being used against the Axis. It tore a 440-foot gash 8 feet deep through solid rock in the bottom of this stream, throwing a column of mud, water and rock fragments—all colored by the smoke of the detonated explosive—to a height of more than 2000 feet. In the river, just ahead of the man-made geyser, may be seen the extension of the twin lines of pipe casing carrying the rock bore hole diameter to the surface, and providing at once loading guide, container and alignment for the serried rows of dynamite cartridges. This one river crossing required more than 30 tons of explosives to open the 2200-foot ditch across the stream. (International News photo)

STEAM DRIVES ON TO VICTORY!

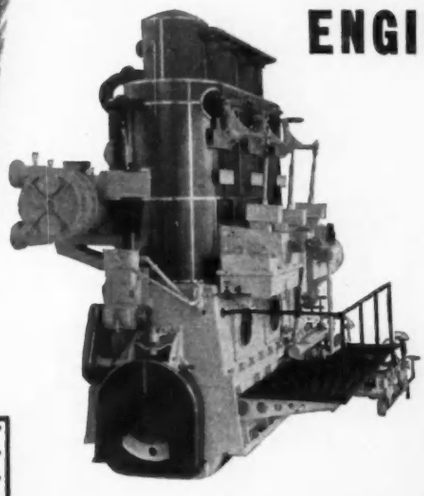
AJAX

Steam DRILLING ENGINES



Powerful, dependable and economical Ajax Steam Drilling Engines are doing an outstanding job in releasing virgin crude oils for fighting duty on United Nations' fronts.

MARINE ENGINES



On the seas with U. S. Maritime Shipping, the Ajax specially designed Marine Compound Uniflow Steam Engine is contributing dependable performance for a quicker victory.

AJAX ENGINES

The exceptional ingenuity and correctness of Ajax designed steam engines are responsible for the widespread confidence they enjoy wherever steam power is required. And Ajax continues to merit this confidence by delivering unmatched dependability and continuous power—**faster, better,** and cheaper!

Manufactured Exclusively by

AJAX IRON WORKS
CORRY, PENNA.

Distributed by
THE NATIONAL SUPPLY COMPANIES IN EVERY FIELD

The big line crossed all kinds of obstacles, natural and man-made, by burrowing through or under them. Streams were ditched by explosives, draglines and even by hand. Here a dragline operator keeps himself and machine dry by building a dike from the spoil dragged from the trench in which the pipe will be laid. Starting at one bank, and operating on a series of mobile plank sections, the unit laid up a mole above the water level, on which the machine was able to operate advantageously and in comparative dryness. The mole was stopped short of the farther bank, so as to leave a gap through which the stream might flow, the trench being completed across the gap by manipulation of boom and bucket.

Swamps complicated the task of trenching by reason of the interwoven mass of roots, buried logs and other debris which blocked use of ditcher or dragline. To cross one end of this swampy pond, a cofferdam of sand bags, carried from bank to bank, isolated part of the water which was pumped over the dike into the main body of water, leaving oozy bottom exposed and accessible for hand digging and chopping away of the wooden obstacles athwart the right-of-way.

READY! Simplified Catalog of G-E Renewal Parts

HELPS GET PARTS FASTER

- ✓ Quickly identifies needed parts—pictorially!
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NOW, a single book—indexed for easy reference—can take the place of separate handbooks and bulletins for identifying and ordering most G-E renewal parts needed to keep your equipment in operation. With this book, you'll find it easier to order genuine G-E parts *by catalog number*—saving time all along the line.

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GENERAL ELECTRIC

General Electric Co., Section C 750-220
Schenectady, N. Y.

Yes, I want a copy of your new 96-page catalog "Renewal Parts and Supplies (GEA-638)" to help simplify ordering of genuine G-E parts.

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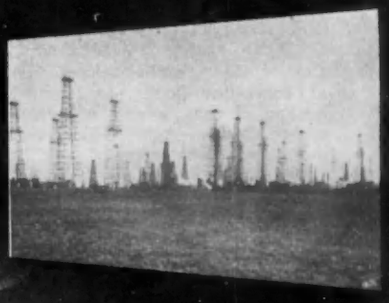
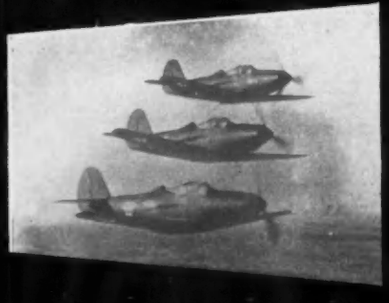
Many stream banks were of gravel composition, rendering trenching difficult and threatening to mar the pipe protection as the line was dragged through to complete the crossing. Slats of 1x4-inch material, wired around the pipe, were reinforced with bands of heavy stranded wire, pulled tight to withstand chafing or displacement by gravel, and the unit carried by the pipe-laying crawlers as far as possible to eliminate excessive drag against the rough surface of the cut. To provide for a hitch on the section of line to be pulled through a stream, a short piece of 4-inch pipe was cut into the specially formed orange-peel nose, and welded securely at both areas of contact with the 24-inch pipe, as shown above. The tow chain or cable could be threaded through the eye thus formed and a positive hitch made without danger of losing the load somewhere in midstream. Such a pulling nose, once across the stream, was cut off and the pipe end bevelled for joining in the usual manner with the next joint of straight pipe, the nose being usable for a number of crossings.

Most highway and railroad fills were pierced with boring machines, but sometimes conditions prevented. This high fill, composed of spoil from a rock cut and clay, required all the timbering and hand mining necessary to drive a small tunnel into rock itself. In this case, after the pipe casing and line had been placed in the tunnel, the hole was hydraulically filled to restore the railroad embankment to its initial soundness.

Small streams sometimes rose suddenly, flowing over temporary bridges built to carry men and machines across during construction work. With stakes to hold plank roadbeds in place, equipment continued to splash through; while small boats transferred personnel unable to find toe-hold on any vehicle which happened to be crossing. River-crossing tactics were used on such streams, with a short pull of firing-line welded pipe in the extended trench at below-stream level.

WHAT'S COOKING!





This is a pot of steel being "cooked up" expressly for the Axis. In due time it will be dished out to the enemy in the form of American cargo and fighting vessels, high octane gasoline and synthetic rubber plants and the oil wells needed to keep those plants humming.

Since Pearl Harbor, the Beaumont Iron Works Company foundry and manufacturing plant have been operating 'round the clock with but one objective . . . victory! Swift victory! For that reason you might have been unable to get all the DREADNAUGHT drilling and producing equipment you wanted at your Frick-Reid Store. Your Patience and the fact that you have done without our products has helped us do an outstanding production job on war material, so you, too, have a stake in the high honors bestowed on us by the Army, Navy and Maritime Commission.

ARMY E NAVY

M

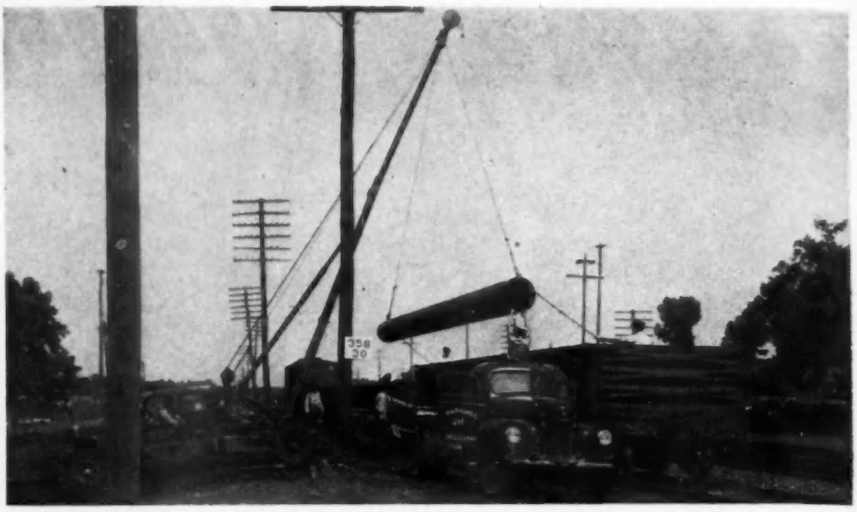
BEAUMONT IRON WORKS COMPANY

BEAUMONT, TEXAS

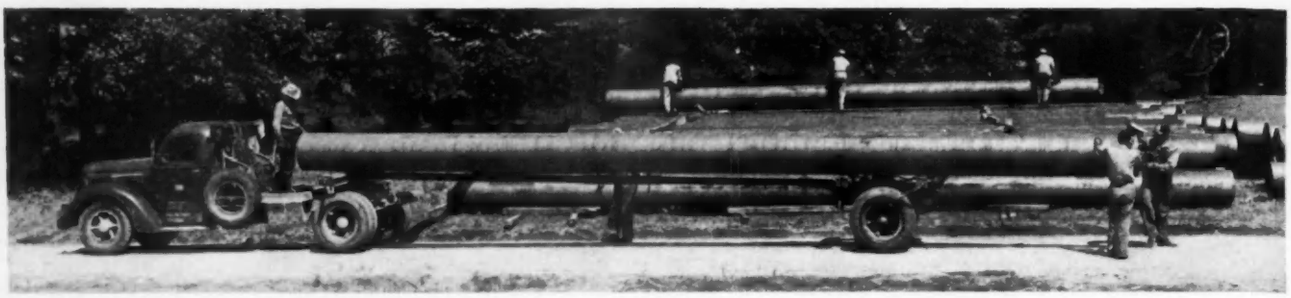
DNT

Let this familiar trade-mark guide you in the selection of quality oil field equipment. It is sold thru Frick-Reid Stores . . . everywhere.

The pipe was received from the mill in doubles 40 feet in length. Specially equipped shear-leg trucks were spotted at unloading sites. End hooks were attached to the pipe and swung it directly from the gondola to semi-tralier road transportation uits. Cars were spotted on the nearest railway siding, and existing highways used insofar as possible to their intersection with specially cleared and leveled right-of-way of the line.



One of the temporary storage yards set up at convenient points, to permit rapid unloading of railroad cars and their return to service, is shown below. These yards served to provide a steady supply of pipe for stringing trucks, and enabled a round-the-clock program to be worked out which kept the pipe moving regularly to the right-of-way. On good going, three joints were considered capacity load, while two frequently taxed power and traction of hauling units where the going got bad.



Truck drivers twisted across the wide cleared strip in search of holding ground as they plowed through hub-deep mud. The loop of wire in the center of the front bumper is tied to the truck frame, and affords a quick hitch for winch line or "cat" when the going becomes bad.

Sharply silhouetted against the quiet charm of the Susquehanna Valley is action — violent, explosive action — as fourteen tons of dynamite are used by Williams Brothers in the Susquehanna River to blast through solid rock a channel for the Big Inch crossing.

Another Victory!

Doing difficult things today and the impossible tomorrow is the spirit of the United States in its Victory effort. This thought, which typifies the determination of America at war, is the spirit which established many new records in the construction of the War Emergency Pipe Line.

Williams Brothers were privileged to contribute the combined weight of their modern equipment, broad experience and trained army of skilled workmen in the building of strategic parts of the Big Inch Line. We are happy in the fact that through thirty years' experience in building pipe lines — in crossing mountains, swamps, rivers and lakes on two continents — we were ready and equipped to discharge our responsibility and patriotic duty to our nation at war.

WILLIAMS BROTHERS CORP.

ENGINEERS CONTRACTORS

Oil — Gas — Gasoline — Water Pipe Lines and Pump Stations

NEW YORK • TULSA • ATLANTA • HOUSTON

Strung out across the hills, the 40-foot lengths are seen to be staggered as they were placed on the ground, this precaution being taken to prevent the jamming of one beveled end against another as the joints were picked up by boom tractors serving the welding gangs. Unloading of pipe from trucks was all done by power, except in those instances where the pipe was rolled on skids to temporary storage piles, when padded tongs with wide gripping surfaces were used so the weight of nearly two tons would not be concentrated and result in dented walls.

This mud was just too deep, so truck trailer wheels have been replaced by a wide-runnered sled. Then, with a tractor tied to the front end of the truck, deliveries of pipe go on. Under such conditions, even provision of heavy timbers on which to unload the pipe helped but little in cutting down the amount of mud which had to be scraped from the pipe before it could be set up, welded and coated.

The 40-foot joints dwarfed handling equipment. So heavy and unweildy were the joints that operators had to watch constantly to keep the load at the end of the boom within the counterbalancing range of the weight of tractor, and even with maximum counterweights the rough terrain sometimes posed conditions forcing the operator to perform stunts which surpassed those of a tight-rope walker.

and Round the Clock

Clarks Serve the United Nations

Take any map of the world, place your finger on any production front, and the chances are there are Clark Compressors nearby, directing their mighty horsepower to the task of finishing the job the United Nations have undertaken.

Their service is vital to victory because they help to produce the things upon which victory depends —high octane gasoline to "keep them flying," synthetic rubber to "keep them rolling", and explosives to "keep them shooting", — to mention just a few.

While breaking producton records, the men and women of Clark Bros. are storing up knowledge and experience destined to play a big part in the postwar plans of ourselves and our allies throughout the world.

CLARK BROS. CO., INC. - OLEAN, NEW YORK, U.S.A.

Export Offices: 30 Rockefeller Plaza, New York. Domestic Sales Offices and Warehouses: Tulsa, Okla.; Houston, Texas; Chicago, Ill. (122 S. Michigan Ave.); Boston, Mass. (131 Clarendon St.); Huntington Park, Calif. (5715 Bicket St.) Foreign Offices: 72 Turnmill St., E. C. 1, London; Avda Roque Saenz Pena 832. Buenos Aires.

CLARK

Using 800 pounds of rods to the mile, or more than 6 pounds to the average junction, welding of the several beads necessary to complete a joint required many feet of electrode travel, and called for the highest type of skill in maintaining uniform conditions throughout the 360 degrees of work. Welding equipment on the line, especially such items as the alignment clamps, handling devices and lifting units, had to be made larger than ever or redesigned to cope with the combination of large diameter and concentrated weight. Alignment clamps, for instance, had fingers twice the thickness of a normal unit, and over half again as much length, all to hold the big pipe rigidly as the proper gap was set and tack welds made to permit running of the first bead. Welding was speeded by the use of two welders at each joint, on all the stovepipe welding, the time saved in getting back and forth across the big tube in itself being no inconsiderable item. Advantage was taken of the clearance provided by the big 3x4-foot trench to enable welders to work below the line in running the base of the weld.

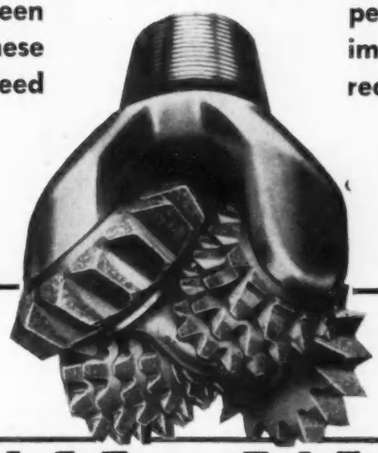
Stovepiping of the big line required accurate balance of the 40-foot lengths to permit quick stabbing into the alignment clamp, with the wagon-mounted or individually powered generator trailing closely behind the spotting tractor. Due to the relatively thin pipe walls, it was not necessary to crib heavily under the line, it being allowed to conform to the contour of the ground as soon as the weld was completed and the tractor was ready to move ahead to the next junction. When aligning pipe for stovepiping, it was usual practice to make the end next to be joined slightly heavier than the other, to enable one man to guide the big tube easily into the guide fingers of the clamp.

THE A-20 'BOSTON' BOMBER

BUILT BY MASTERS OF THE MACHINE AGE

What more fitting tribute to American craftsmanship than the A-20 "Boston" bomber shown above. Our boys over Europe and the Solomons are daily demonstrating its efficiency to the Axis War-Mongers and their deluded subjects. Sure, we're proud that we have been privileged to build Struts for these masters of the skyways, for Reed craftsmen are putting all of the skill and craftsmanship acquired through years of building oil field drilling tools and valves into their construction.

And to this skill will be added war-gained experience for building new and greatly improved products for the post-war reconstruction that lies ahead.



Buy War Bonds — Every Payday!

REED · ROLLER · BIT · COMPANY

Firing-line welding, using special alignment dollies to facilitate rolling of the pipe for the welder, provided the advantage of uniform working conditions for the welder, and enabled the inspector to check an entire weld as the section was revolved slowly to enable the running of the bead. Length of the section thus formed usually was determined by the availability of tractors to move the assembly to the right-of-way, or by the type of terrain over which such a section had to be transported. Location of the dollies close to the weld simplified stabbing the pipe in alignment clamps, and minimized flexure in the joint itself during the several revolutions required to complete the junction.

Welds were tested by the coupon method, an entire weld and sufficient pipe wall on either side to form the standard coupon for testing being cut out at intervals by torch. After the test section was cut away, a beveling machine was clamped on each pipe end at the part, and new bevels flame cut to permit the gap to be closed and the line reunited. The thoroughness and care expended in making the more than 160,000 welds in the line are testified to by the fact that no leaks developed in any of the welds when the line was tested before put into srvice.

Maintenance of the equipment used for handling the pipe during welding and laying was heavy, due to the capacity loads carried and the need for working under adverse weather conditions. This work was much of it carried out by the same welders and equipment used for joining pipe into the line, the repair job merely being brought close to the line and prepared for welding. Here a welder takes time off from the big pipe to rebuild the drum on one of the boom-equipped tractors, laying on the needed metal without requiring the dismantling of the lifting unit or its withdrawal from service more than momentarily.

Announcing

After 27 years continuous operation, first as Wheatley Brothers, and later as Wheatley Bros. Pump & Valve Mfrs., we are pleased to announce the change of the name of this company which, effective immediately, will be known as:

FRANK WHEATLEY PUMP & VALVE MFR.

For more than a quarter-century this company has pioneered in the production of oil field and pipe line equipment. Combining engineering research, manufacturing skill and practical field experience has brought many important developments in the products made by this firm.

And while continuing to produce our complete line of pipe line equipment and supplies, we have been privileged the past two years to manufacture special materials for the United States Army and Navy and the world-famous War Emergency Pipe Line.

With expanded plant capacity and increased equipment and facilities purchased to produce vitally needed war materials on which contracts have been completed, we are now in a position to make immediate deliveries of most of our products.

W WHEATLEY

FRANK WHEATLEY PUMP & VALVE MFR.

• PIPE LINE SUPPLIES •

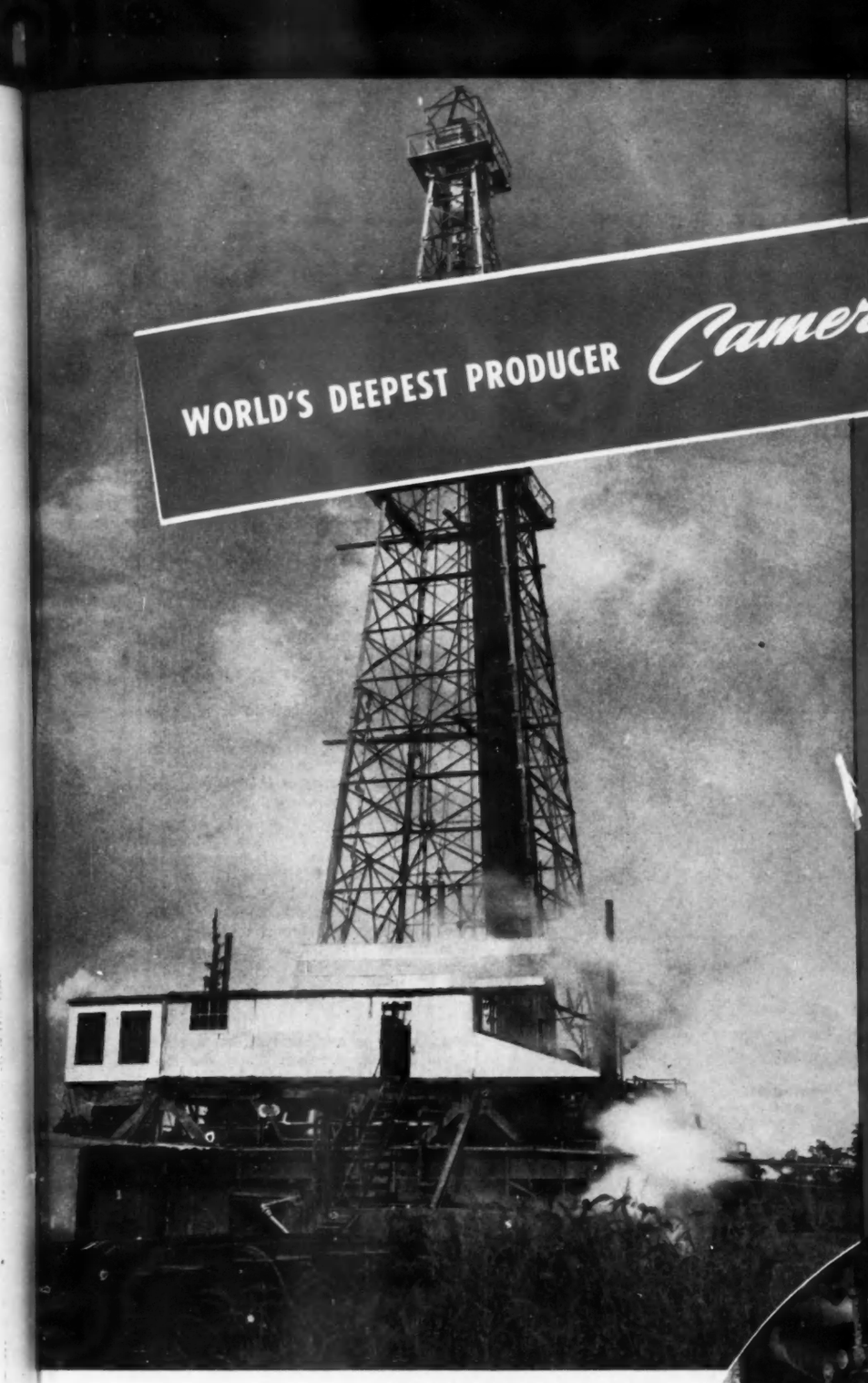
TULSA 6, OKLAHOMA, U.S.A.

Most of the bends on the line were field made, however, a few of the turns were so abrupt factory bends were used. These were stovepipe welded to the line, the tangents of the turn and the straight pipe being aligned with clamps as if they were plain joints.

Making a hot field bend in a joint preparatory to stovepiping it into the line. The muffle was formed to fit closely over the pipe, confining the heat from the giant blowtorch on the outside of the pipe at the joint where the curvature was to be placed. One end of the pipe was anchored to a second joint of pipe, the two being held apart at the point of bend by a stiffleg or strut with formed saddles that fit around nearly a semi-circumference of the pipe. Pull applied across the open ends of the V formed by the two pipes through a small power winch and four-part tackle resulted in the gradual shifting of the metal in the heated section of the line joint, the amount of curvature applied being regulated visually.

Where the terrain permitted, over-bends and under-bends were relied upon to provide the required slack to take care of expansion and contraction shifts in line length under climatic changes. On long and level stretches of the route, rather than attempt to introduce slack through the erection of cribbing, lateral bends were utilized, the line over a given distance being formed into a sweeping curve that was some 10 feet from the trench at the center of the arc while at normal distance from the ditch at the ends of the loop. When lowering in, the sections parallel to the ditch were placed first, and the center of the loop then crowded into the trench to provide the desired slack.

WORLD'S DEEPEST PRODUCER *Cameron-ized!*



WORLD'S DEEPEST OILER COMPLETED ON PELICAN COAST

By Associated Press.

Baton Rouge, June 17.—Oil explorers in the DeLarge field of Terrebone Parish have drilled more than 2½ miles into the earth, to set a new world record for depth of an oil producer.

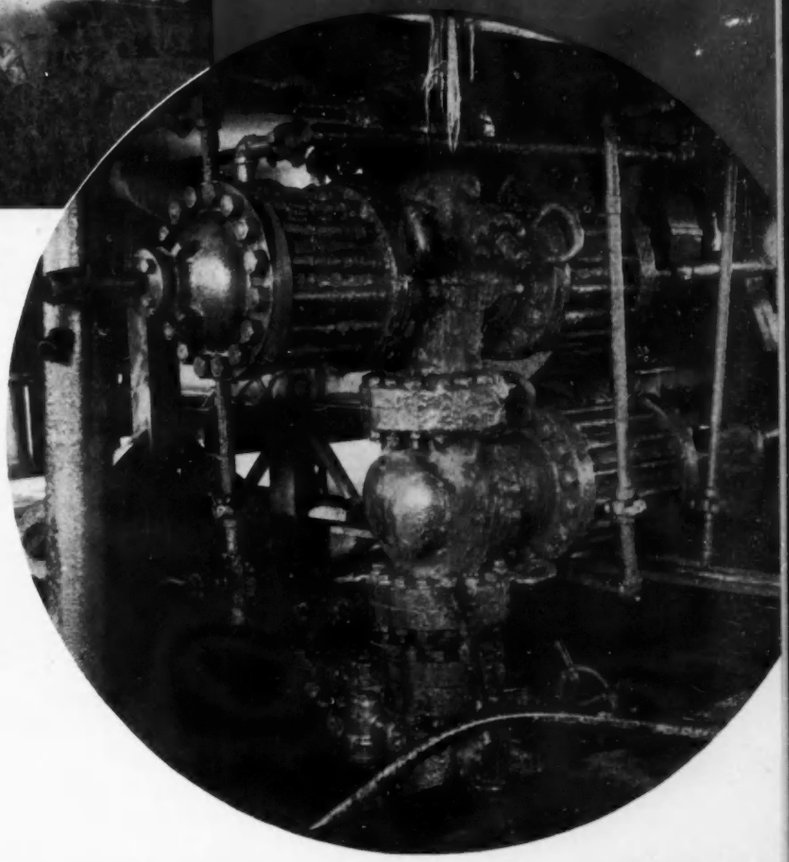
The first world record was set by the South Louisiana field's discovery well, which was completed at 13,265 feet, several years ago, to give Louisiana the deepest producer.

The new well, Union Producing Company's No. 1 Fitzpatrick-Vizzard, was brought in through perforations at 13,457 to 13,490 feet.

It was classed, unofficially, as a gas-distillate well, and a state potential test was awaited.

The No. 1 Fitzpatrick-Vizzard was said to have opened a northeast extension of the field, and maybe a new producing horizon.

Preliminary tests made through a 3/16-inch bottom hole choke and a ¼-inch top hole choke showed



No. 1 Fitzpatrick-Vizzard, DeLarge field, Terrebonne Parish, Louisiana. (Right) Cameron 6000 lb. test drilling control units — Type SDA Pressure-operated Blowout Preventer and Type DV Pressure-operated Gate Valve.

No. 1 Fitzpatrick-Vizzard, drilled jointly by Union Producing Co. and the Fohs group—DeLarge Oil Co., Fohs Oil Co., and Foroy Petroleum, Inc., and recently completed at a depth of 13,457-13,490 feet in the DeLarge field of Terrebonne Parish, Louisiana, is the new depth record holder, exceeding by 225 feet the depth of the previous deepest producing well, Buckley-Bourg No. 1, also located in the DeLarge field.

Drilling to such extreme depths in this semi-marine field, an operation complicated by the marshy terrain and the ever-present high gas pressures, deserves the plaudits of the entire industry.

That Cameron Pressure-Operated Drilling Control Units were selected to protect the substantial investment in these unusual wells is testimony to the confidence placed in this equipment by the industry as a whole.

Operators who are planning deep exploratory wells are urged to weigh carefully the numerous exclusive mechanical advantages provided by Cameron Pressure-Operated Drilling Control Units and to bear in mind that no well, equipped with Cameron drilling control units of adequate test pressure, has ever been lost due to failure of the drilling control equipment.

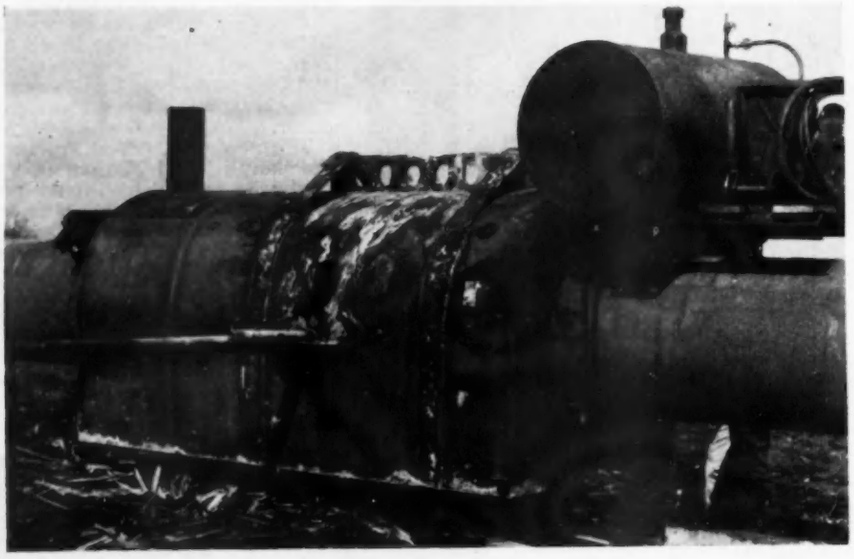
CAMERON IRON WORKS, INC.

711 MILBY ST., HOUSTON, TEXAS

Export—74 Trinity Place, New York, N. Y. *California*—Howard Supply Co., Los Angeles. *Rocky Mountain*—Mountain Sales and Service, Casper, Wyo.

The line climbed higher into the Appalachians during mid-winter, and the bare steel took on a heavy coating of frost and rime, seriously retarding the application of the two protective coatings necessary to prolong pipe life.

Where the coating was light, hand-operated blow torches sufficed to put the surface in proper condition for coating. Three men were used to carry and control the torch, a truck-drawn supply of fuel enablnig the blast to be maintained as desired until the surface was dried and warm enough to resist redeposition of condensation from the cool air.



After frost coatings had become thicker, a traveling de-icer, riding the pipe on casters and merely balanced by the operators walking alongside, was devised. The inner shell of the unit was a skeleton only, with horseshoe-shaped ends which fitted closely over the upper half of the pipe. In one end were arranged sets of oil burners, so set as to direct their flames parallel with the axis of the pipe. At the rear of the device was carried a fuel tank, carrying air pressure for uniform flow to the burners, and equipped with a large filler car to permit replenishment of the supply without halting the forward progress of the unit. A short stack at the front aided in the travel of the heated products of combustion along the pipe, while enclosed bottoms of the extended sides prevented entry of cold air along the warmed section of line.

Shown below is another type of pipe warmer, in which small openings along the top take the place of the stack, and tend to retain the heated air within the jacket, forcing it to find egress downward along the overhanging sides and below the pipe, warming the metal throughout its circumference. The sled-mounted (wheeled) compressor and fuel tank was connected to the burner manifold of this unit with a hose, a tractor serving to draw the sled while two operators, with balancing poles, rolled the device along.

PIPELINES AND BANKS

Arteries of Commerce

Like great arteries, pipe lines transport vast quantities of crude oil from producing fields to the tank farms and refineries of the nation. Today, supplementing the facilities of the pipe line industry, the War Emergency Pipe Line, "Lifeline of Liberty," is moving daily to the Eastern Seaboard, 300,000 barrels of East Texas crude oil, life blood of mechanized warfare.

Great banks, like pipe lines, are arteries of credit and commerce, serving the people, business and government. Today, more than ever, America's banks are furnishing the service so necessary to industry and to the nation at war. And today, more than ever, the services of the National Bank of Tulsa are being constantly adjusted and expanded to meet the growing needs of the petroleum industry and the nation to which oil is so vital.

NATIONAL BANK OF TULSA

The Oil Bank of America

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Protecting the $95,000,000 pipe-line investment against the ravages of electrolytic corrosion required the exercise of ceaseless care in cleaning of the pipe, the application of the preservative or insulating coatings, and the safeguarding of this protection against damage while placing the line in the trench or through expansion shifts of the big tube afterward. Here a self-propelled cleaning machine, operating on a raised section of pipe supported between dollies carried by two crawler cranes, is scrubbing dirt, grease and rust scale from the metal with a series of wire brushes. It is followed closely by the enamel spraying unit, which applied hot enamel in a uniform coat. This view shows the dirty pipe as it appeared after stringing, welding and handling preparatory to application of the preservative. Between the two working heads of the machine the pipe may be seen in cleaned condition, while to the left the newly applied enamel coat glistens in the sun.

Thickness of the enamel coat was determined with a standard pipe-pit gauge, the prime coating being checked frequently to maintain a covering of 3/32-inch. Checking the gauge atop the pipe gave evidence of ample protection below. A holiday detector, run over the line following the enamel or prime coat application, provided for detection of any skips or "holidays" in the enamel. The rippled surface of the weld, in contrast with the cylindrical pipe wall, always was checked carefully to determine the completeness of the covering. Here a brush and pot of enamel are used to insure an unbroken coating of enamel. This coating machine in contrast to the one shown in the top picture, traveled on a frame only partly supported by the line, the outboard wheel serving to do more than balance the overturning effect of the brush rotor.

PARKHILL TRUCKS

Have Helped Complete the Job!

Stringing Pipe Through the Piney Woods in Arkansas

Unloading Pipe on Big Inch Line

Stringing Trucks Unloading Big Inch Pipe in Western Ohio

Unloading and Stringing Big Inch Pipe in Eastern Ohio

Parkhill unloaded, hauled and strung in the states of Texas, Arkansas, Indiana, Ohio, West Virginia and Pennsylvania

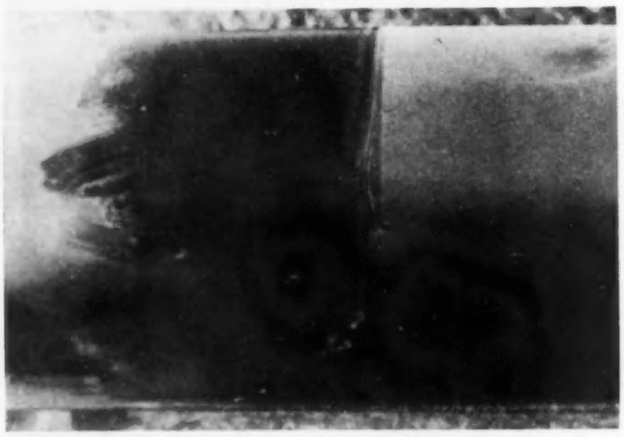
• Pipe Line Stringing Contractor • Pump Station Machinery Hauling • Where Pipe Lines Are Under Construction, You Will Find Parkhill on the Job • We operate in 31 states under ICC Permits MC-30188 and MC-30188 Sub. 3 • *Modern Equipment and Experienced Workmen* • *Efficient, Responsible* • We are now unloading, hauling and stringing on the 20" Products Line in the states of Texas, Louisiana, Arkansas, Indiana, Ohio, West Virginia and Pennsylvania.

Established 1920

PARKHILL TRUCK COMPANY

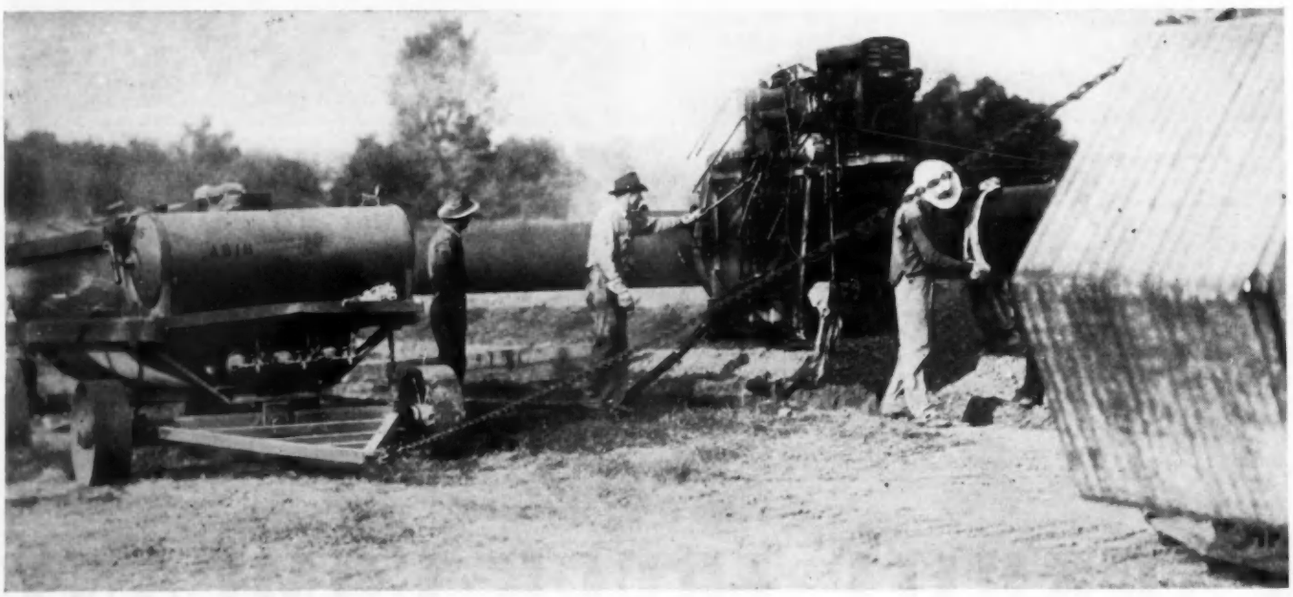
General Offices

2000 E. Jasper **TULSA, OKLAHOMA** **Phone 4-6159**

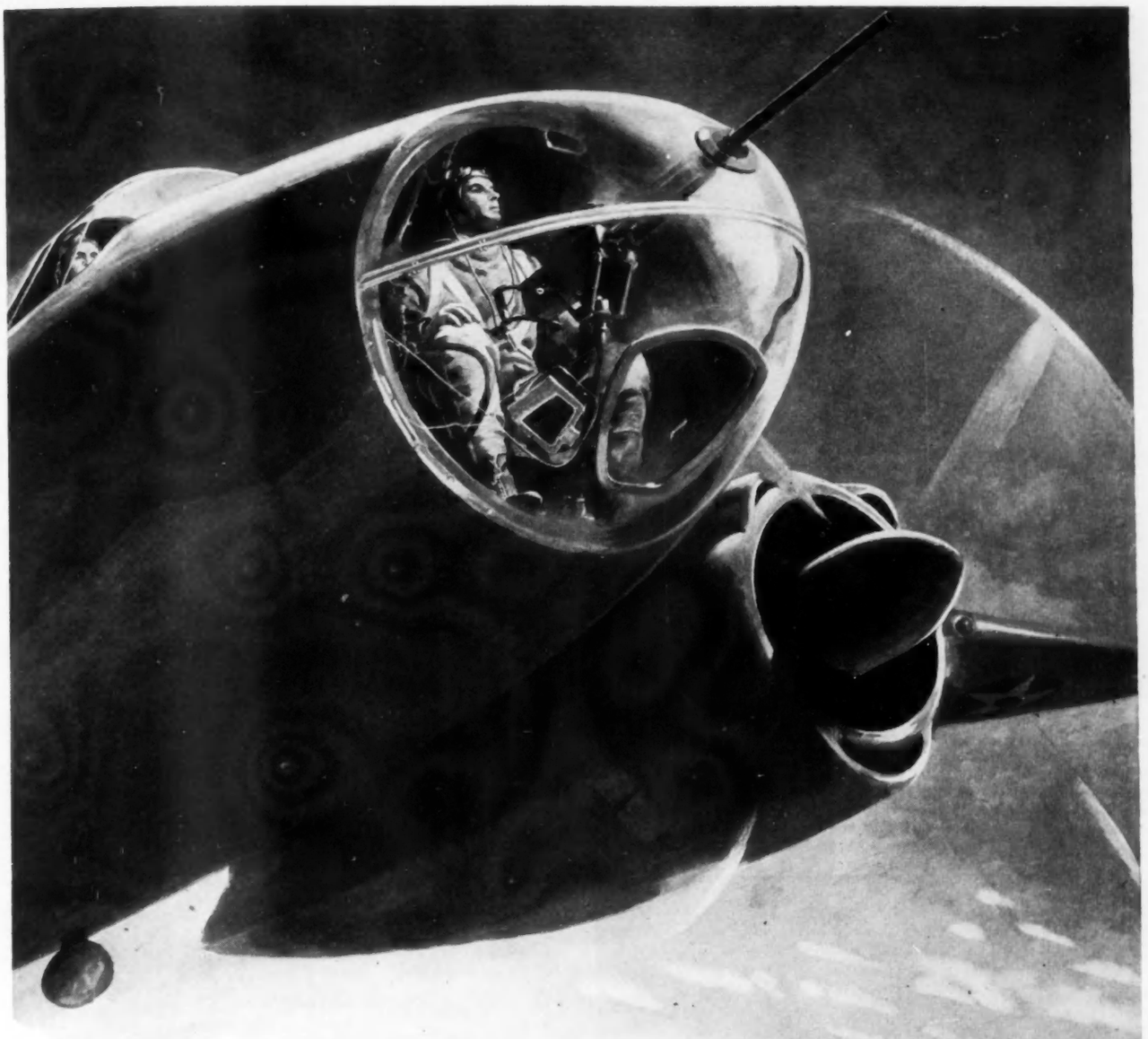


Although most of the line was cleaned and coated after being welded and set up over the trench, yard coating for firing-line welding was used by some contractors and for river and highway crossings. Special frames, to support the ends of a doubled (or mill) length of pipe, were set up, and the pipe revolved slowly on the supporting end roller. A curved frame of light steel plate, thickly set with steel brushes, was worked gradually down the length of the joint, then followed by a crew using the "granny" rag and pot method of applying hot enamel.

The pipe was rotated through power applied to one set of rollers, an automobile transmission gear being used to provide speed changes. Through parts of the country dust was even present, tending to slow work and to introduce extra cleaning not anticipated when the job was undertaken. At left a short section of pipe has been hand wiped to show the amount of dust which settled between completion of the priming operation and the start of the final coating and wrapping. This dust was removed by hand, using soft rags and long bristle paint brushes.



Just ahead of the wrapping machine, workers made a final pass of the rag to insure a spotless and dustless surface for the second coat of hot pipe "dope." Over this, and bonded to the pipe by the hot enamel, twin spirals of heavy impregnated felt completed the armoring of the line against corrosion. The chain from the top of the counterweights of the towing crawler at the extreme right pulled the oil-fired dope kettle, from which a stream of hot enamel was pumped through a connecting hose to the reservoir on the combination coating and wrapping machine that rode the pipe.



"GREENHOUSES"

for the boys "upstairs"

BLIND SPOTS are a combat flyer's nightmare. In World War I, his skill in "anticipating" and maneuvering was all that saved him.

NOW HE CAN SEE. Pilot, bombardier and gunners have "greenhouses"—that's what they call their shells of light, durable, transparent plastic—to protect their eyes from the wind and weather, yet let them look above, below and all around.

At the "University of Petroleum," Shell's research laboratories, a way was found to combine molecules from petroleum gases which makes possible the molding of these smooth, tough, transparent globes of open "daylight."

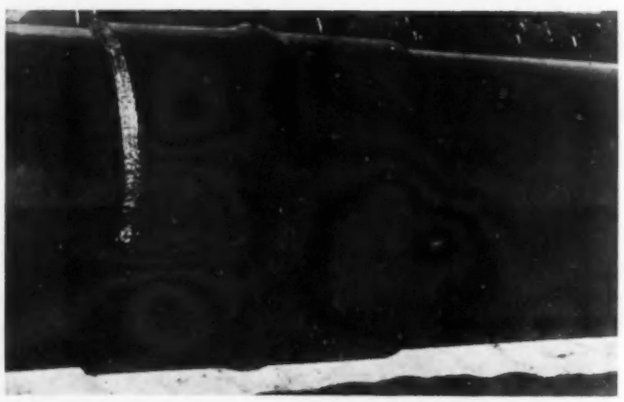
• • •

Horizons widen through Shell research. The increasing knowledge of petroleum molecules today is "coming home" to you in dozens of ways. Already it has led to better food, better clothing at lower cost, more effective drugs, and plastics with scores of uses.

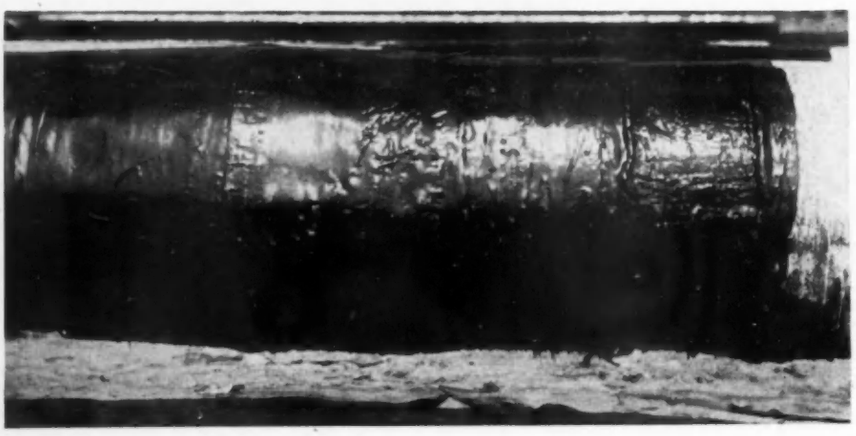
SHELL

SHELL RESEARCH: *Sword of Today—Plowshare of Tomorrow*

Hilly country, and even steep slopes failed to halt the progress of mechanized coating and wrapping units. Here a wrapping machine descends a steep grade, under control of a wire line from the drum of an anchored winch unit, while the cleaning and priming machine, already down the hill, works it way across the rolling country beyond. When working in such country, especial care was taken to keep sufficient interval between spreads, so that the alternate lifting and lowering of the line for the various machines would not carry a wave of slack along the pipe in the direction of other work, and possibly leave the pipe short of bottom at some depression or stream crossing.

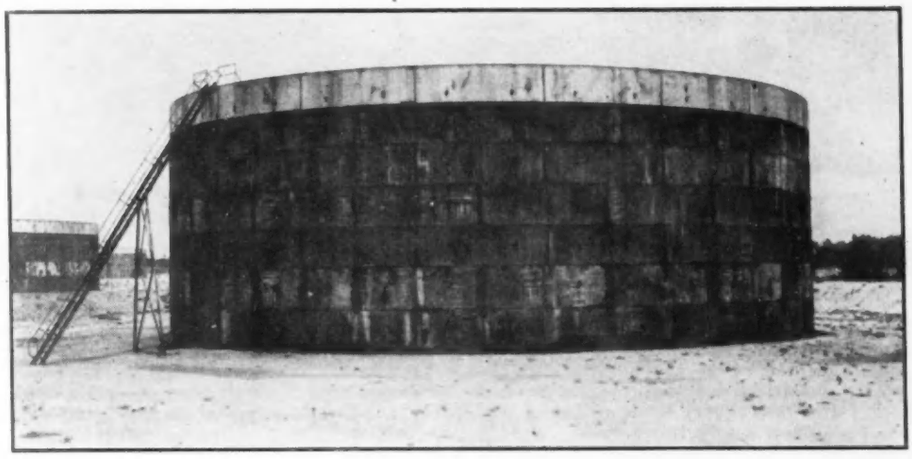


Hand-brushed enamel prime coat over a weld reinforcement sleeve was used to stiffen joints of pipe for crossings. The two halves of the sleeve, welded in place with a special jack to obtain close fit between pipe wall and cover, projected so far that machine clearances would jam, leaving such protection as one of few hand jobs done on the line.



After the sleeve had been doped thoroughly with the prime coat, a "cigarette wrap" of short sections of wide felt and hot dope were applied over the welded section. The wrap was carried over the machine-wrapped sections immediately adjacent, and a final coat of hot material was spread outside the felt to insure against possible holiday. In the cigarette wrap each piece of felt used was long enough to make a complete turn around the pipe, and to afford a lap of some four inches.

Safe Storage



"on the BIG INCH"

Safe storage is always important. We are proud to be identified as the "Erectors of Steel Storage on the Big-Inch Line."

We offer modern facilities for the construction of steel storage.

☆

STEEL TANK CONSTRUCTION COMPANY

DALLAS, TEXAS *and* **HOUSTON, TEXAS**

Much of the backfilling was done with bulldozers where weather and terrain permitted, with the dragline serving to replace the earth from all portions of the line where the trenching machine was able to use the short disposal conveyor. Special booms enabled the units to be used across the wide trench, and still not encroach on the margin of the ditch.

Over much of the line, the curved bottom of the trench, as formed by the cutting edge of the trencher, provided a satisfactory support for the line as it was lowered into place. Through rock cuts a cushion of soft earth was laid in the bottom of the trench to protect the felt and enamel coating against possible contact and damage from rocks in the ditch.

In open country, where the going was uniform, the lowering-in and backfilling gang pushed closely behind the wrapping crews, the interval being determined largely by the length of line required for inclusion of slack for over, under or side bends. Anchorage provided by backfilling a joint or so of line was sufficient to prevent lateral displacement of the line as slack was crowded into the ditch.

Where considerations of terrain or access to the line required the piling of soil at a distance from the trench, crane-operated buckets, traveling on crawlers, were used to speed up the earthmoving during backfilling. Only when weather made it impossible to follow closely behind the wrapping crews did the ditch remain open and the pipe stand unprotected by its normal blanket of earth.

☆

"BIG INCH" ARRIVES

On its final swing from Norris City, Ill. to the Atlantic Seaboard, where it is going to help solve the serious oil problem, the famous "Big Inch" pipe line encounters some bad corrosive conditions. There is considerable clay in the soil and the uneven topography of some sections causes poor drainage at the bottom of grades. ● Bitumastic Enamel was selected to coat the "Big Inch" where it passes through these corrosive areas in Illinois and parts of Indiana, Ohio, Pennsylvania, and New Jersey. ● Bitumastic Enamel has been used on over 10,000 miles of oil, gas, water and sewer pipe lines and applications made as much as thirty and more years ago still show no sign of deterioration. There is good reason why Bitumastic Enamel holds this outstanding record for years of protection. The pioneer coating of its type, it is especially formulated for maximums in chemical inertia, in resistance to soil stress and in adhesion to the primer.

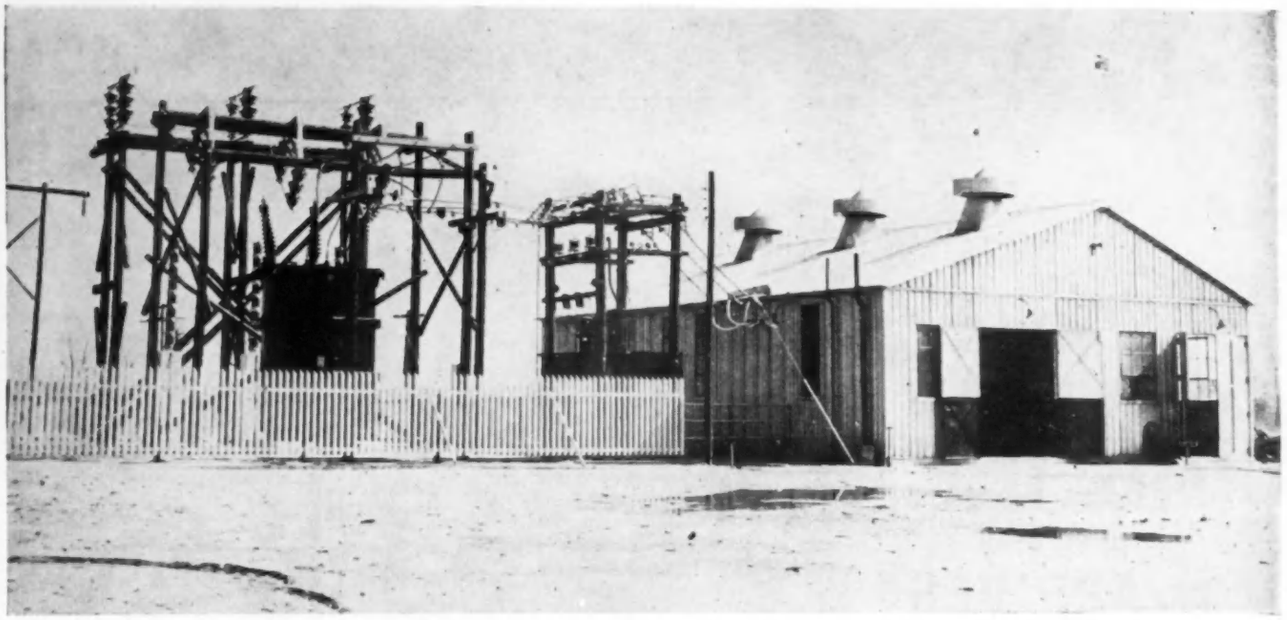
Long before and especially since Pearl Harbor an increasingly large number of Bitumastic Enamel coating projects have absorbed considerable of our production for other war needs. Armament production plants, ships, submarines, airplanes, drydocks, airfield gasoline storage tanks, marine railways, canal lock gates and hydroelectric plants, army camps, naval bases and housing projects have various vital surfaces safeguarded against many different corrosive influences with Bitumastic Enamel and other Bitumastic coatings.

BITUMASTIC *Enamel*

WAILES DOVE-HERMISTON CORPORATION

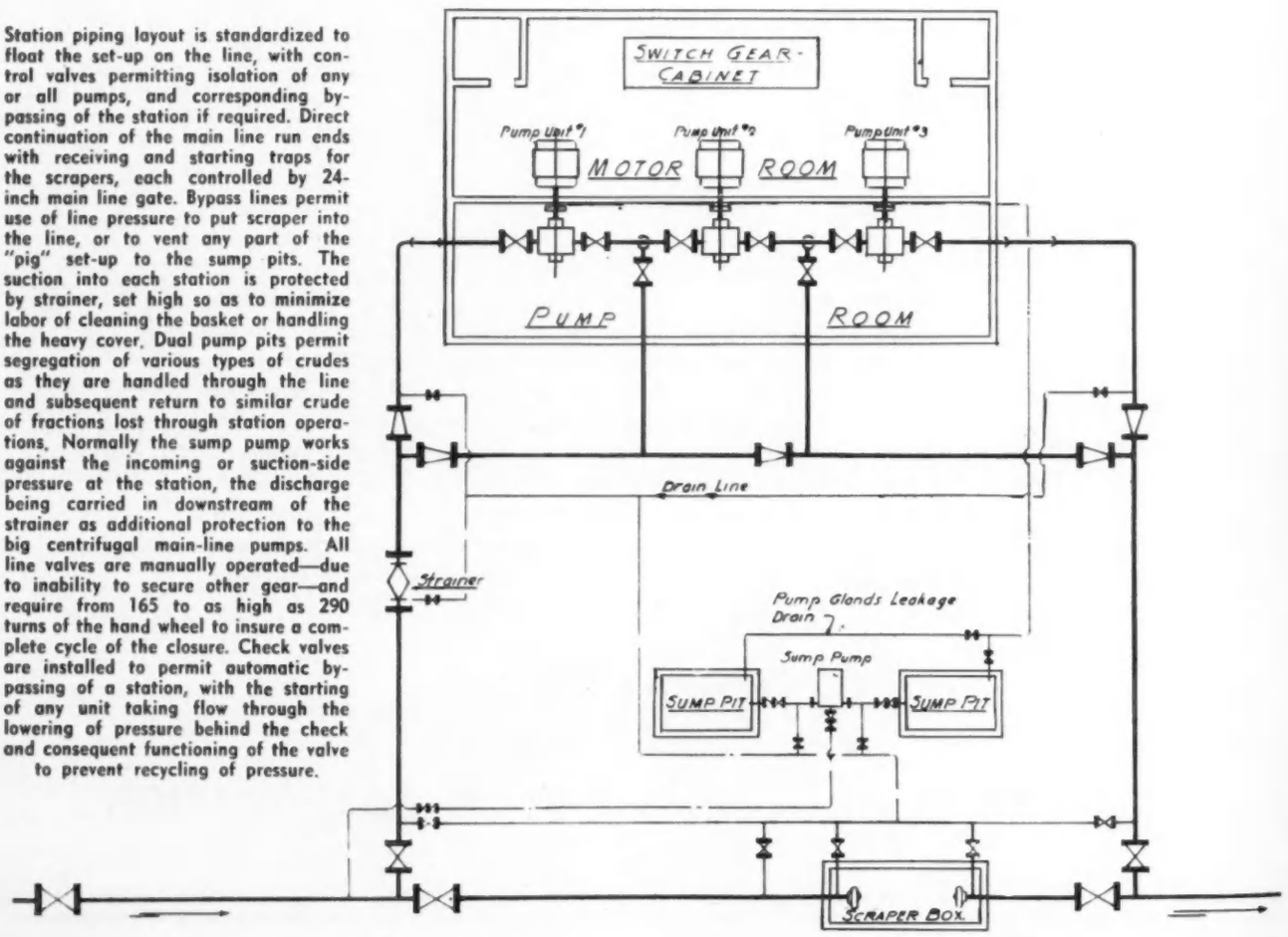
Westfield, New Jersey

NEW YORK • PHILADELPHIA • CLEVELAND • CHICAGO • HOUSTON • TULSA • MIAMI • SAN FRANCISCO • LOS ANGELES



The smallest big pump station in the world. Handling 12.43 gallons of fluid per minute per square inch of floor space, it is believed that these intermediate stations on the big line set a new high for efficient use of building area. Electrically driven, high-line power is brought in at as high as 110,000 volts, and stepped down through a single transformer to the required 2400-volt station current. War shortage of steel is evident in use of creosoted wood poles throughout the high-tension set-up adjoining the station. Extra care was exercised to reduce to a minimum interruptions of station operating through lightning disturbance. In one instance a 600-ampere, 115,000-volt, 1,000,000-KVA interrupting capacity oil circuit breaker protects a 150-mile transmission line built especially for line station needs. Included in the limited area of each station are office and bathroom, in addition to complete tool board and bulk dispensers for lubricating oils.

Station piping layout is standardized to float the set-up on the line, with control valves permitting isolation of any or all pumps, and corresponding by-passing of the station if required. Direct continuation of the main line run ends with receiving and starting traps for the scrapers, each controlled by 24-inch main line gate. Bypass lines permit use of line pressure to put scraper into the line, or to vent any part of the "pig" set-up to the sump pits. The suction into each station is protected by strainer, set high so as to minimize labor of cleaning the basket or handling the heavy cover. Dual pump pits permit segregation of various types of crudes as they are handled through the line and subsequent return to similar crude of fractions lost through station operations. Normally the sump pump works against the incoming or suction-side pressure at the station, the discharge being carried in downstream of the strainer as additional protection to the big centrifugal main-line pumps. All line valves are manually operated—due to inability to secure other gear—and require from 165 to as high as 290 turns of the hand wheel to insure a complete cycle of the closure. Check valves are installed to permit automatic by-passing of a station, with the starting of any unit taking flow through the lowering of pressure behind the check and consequent functioning of the valve to prevent recycling of pressure.

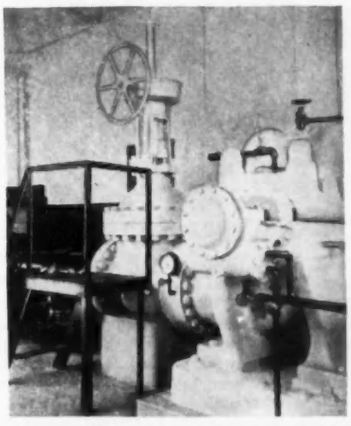


Congratulations

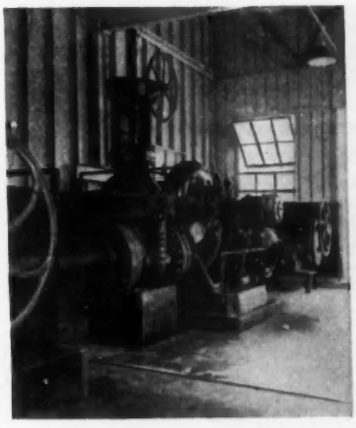
TO THE MEN WHO BUILT *"Big Inch"*

Now that the "Nation's Life Line" has been completed, you fellows who have worked on this gigantic construction job deserve a great big hand! You've done a grand job at a very critical period in our country's history.

We are proud of you — and proud, too, of our own co-workers who produced the Walworth Pipe Line Valves that are now a part of "Big Inch." Walworth Company, 60 East 42nd Street, New York 17, N. Y.



Walworth Pipe Line Valves installed in pumping stations along the "Big Inch."

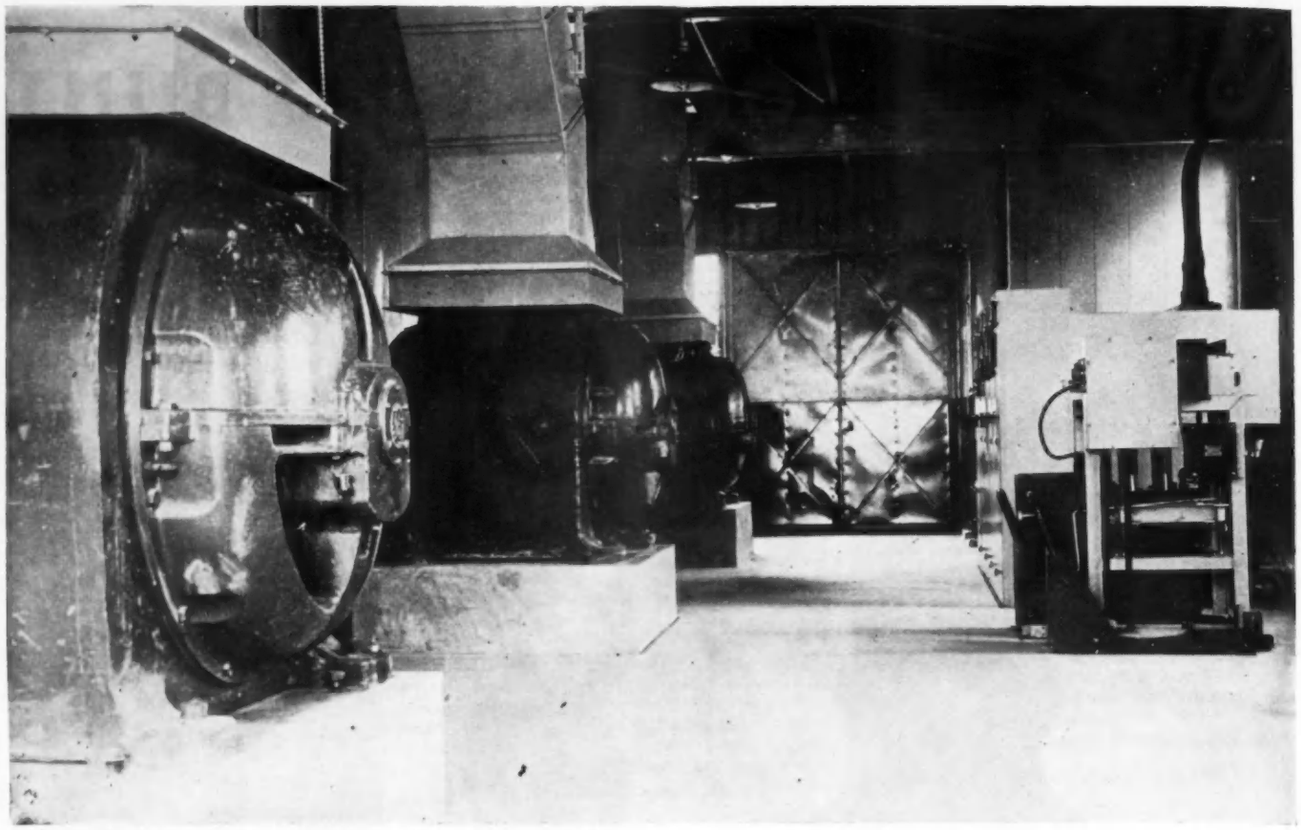


BOSTON WORKS
KEWANEE WORKS

WALWORTH

valves AND fittings

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD



Two manufacturers, given overall dimensions and installation limiting clearances, designed motors which, with interchangeable base, similar shaft center height and like operating characteristics, could be interchanged anywhere throughout the system and still drive the big pumps at full rating. Each manufacturer also designed and built the switchgear, with varying types of load-starting characteristics according to power and line requirements. Above photograph shows three of the 1500-horsepower 1780 r.p.m. 2300-volt induction motors aligned to drive three pumps through a fire wall, the motors being fully ventilated and protected against excessive temperature rise. The switchgear consists of auxiliary and incoming-line units and three full-voltage starting units, the control panel for the motor ventilating fans being visible in the far corner of the room, against the side of the built-in station office. The lower photograph shows the interior of the motor section of another of the intermediate stations, in which the motors are different in manufacture from the ones shown above.

The view shows the reduced voltage switchgear for the control of incoming power and reduced voltage starting of the 3-phase, 60-cycle main pump motors. The type of seal on the motor-pump shaft is visible behind the second of the series of motors. All motors are protected against overload or high temperatures, shutting down automatically in case of failure of the ventilating system. Mercoind switches, pressure regulated to trip within close limits of main-line pressure, control the governing circuits of the switchgear and bring successive stoppage of the motors in the station, beginning with the low-pressure or suction unit and progressing at 2-second intervals to the third or high-pressure unit.

OUR pipe line construction personel appreciate the various opportunities which have been accorded them for the rendition of effective service under the War Pipe Line Program.

☆

EXETER CONSTRUCTION CORPORATION

CAMP HILL, PENNSYLVANIA

T. BLAIR G. B. PACE L. B. SMITH

BIG INCH was built with the aerial surveys of AERO EXPLORATION

AS THE FIRST contractor on this huge undertaking Aero Exploration finished the Aerial Photographic Survey in record time, justifying the faith in this company by the eleven major oil companies jointly building the world's largest pipeline . . . You plan with knowledge of ALL conditions with an Aerial Survey as the guide, let us furnish the facts.

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The

CLARENCE L. BOYD CO., INC.

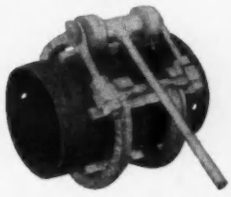
PIPE LINE DIRT MOVING & CONSTRUCTION EQUIPMENT

International TracTracTors and Wheel Tractors . . . Gas or Diesel . . . From 22 H.P. to 75 H.P.

• • •

General Pipe Hooks . . . An effective hook for handling all sizes of standard pipe from 4" to 24" . . . All steel . . . Wide flanges . . . Heavy links . . . Heavy welded I-Beam construction.

• • •



Tipton Pipe Welding Clamp . . . An efficient clamp designed by experienced engineers. Clamps are adjustable. Sixteen sizes to fit pipe range of 2" to 24".

WIRE BRUSHES, TAMPICO BRUSHES, CANVAS RUGS, AIR PUMPS, MIXERS, BURNERS, SHOVELS, SCRAPERS

TULSA, OKLAHOMA . . . 303 S. FRANKFORT

BO BARDSLEY, *Pipe Line Representative*

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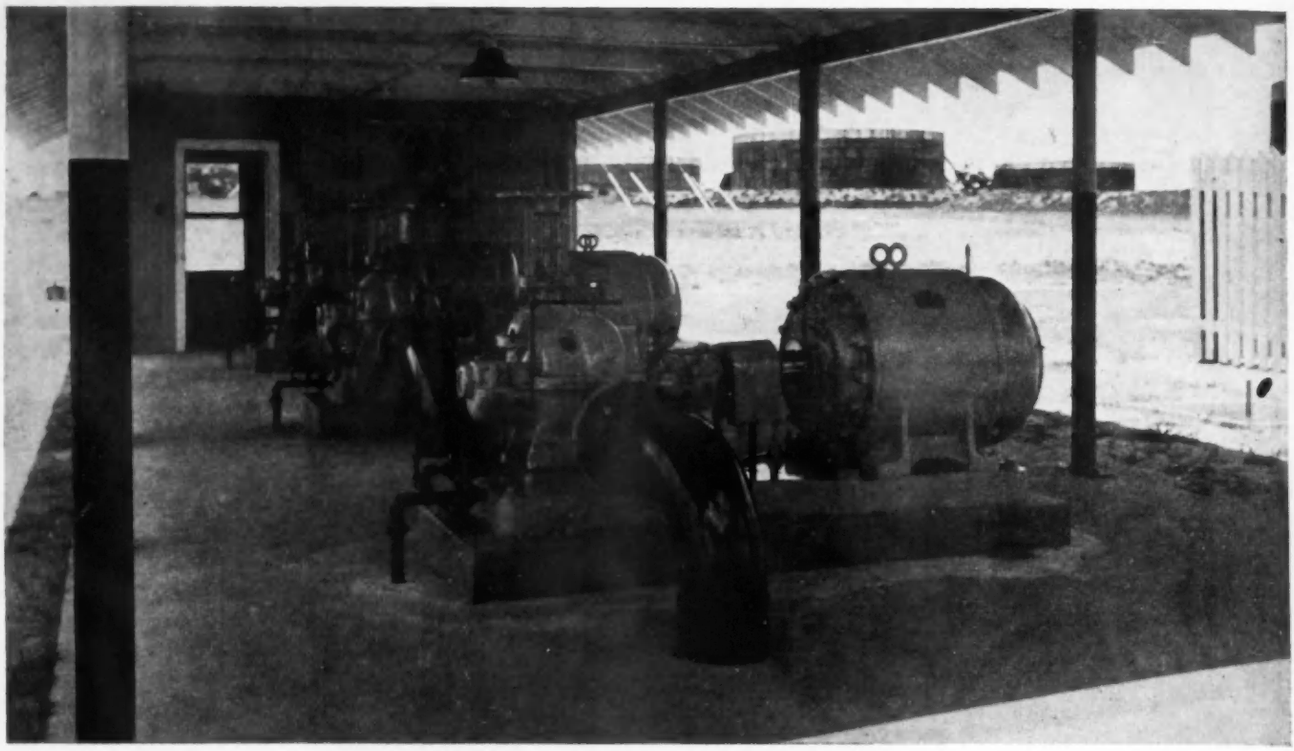
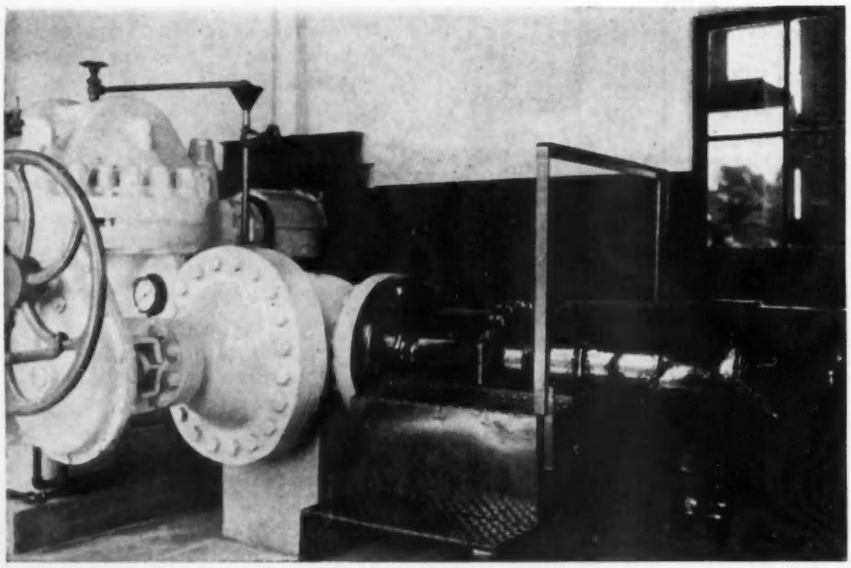
(Photos this page approved for publication by War Department, Bureau of Public Relations)



These three pumps, each driven by only a 100-horsepower, 1750-rpm motor, provide the entire suction stream of 300,000 barrels of fluid per each 24 hours. Working on a total designed head of only 110 feet, the pumps insure the required 50-pound suction pressure at the first of the three series pumps in the station. Operating in parallel, they may be switched instantly from one to the other of the big suction mains from the tank farm, permitting accurate control of the batching system through which widely varying crudes will be segregated throughout entire system.



Designed and assembled to close limits, the requisite slack between the several pumps in a station set-up is provided by a single flexible coupling which not only breaks any periodic vibration in the line but also absorbs elongation changes due to temperature variations in line or fluid. The short discharge nipple is standardized, and may be used between the end flange of any pump and the corresponding expanding section of the line. The heavily reinforced Tee to the right of the coupling carried a branch of the line to the corresponding check valve to permit closure of the line ahead without impairing partial delivery through the remaining units.

To permit shift of the big storage tanks under rapidly changing conditions of loading or emptying, and to absorb exapnsion stresses, the delivery line from each tank into the twin tank-farm collecting systems is equipped with a sleeve-joint, in which the misalignment introduced by shift on one portion while the other remains held rigidly is absorbed without possibility of leakage. To insure anchorage and minimum shift of one end of the line, it is buried, the big coupling also being partly covered to reduce the amount of exposed line necessary for the tie-in.

SHEEHAN

Sheehan Crews have made a substantial contribution to War Emergency Pipe Lines.

SHEEHAN PIPE LINE CONSTRUCTION COMPANY

JOHN B. SHEEHAN, Manager

NATIONAL BANK OF TULSA BUILDING

TULSA, OKLAHOMA

GATX GENERAL AMERICAN

PLATE & WELDING DIVISION

PLANT AT SHARON, PA.

Steel plate fabricators

Manufacturers of Class I pressure vessels and all other classes of welding

Complete X-ray and annealing facilities

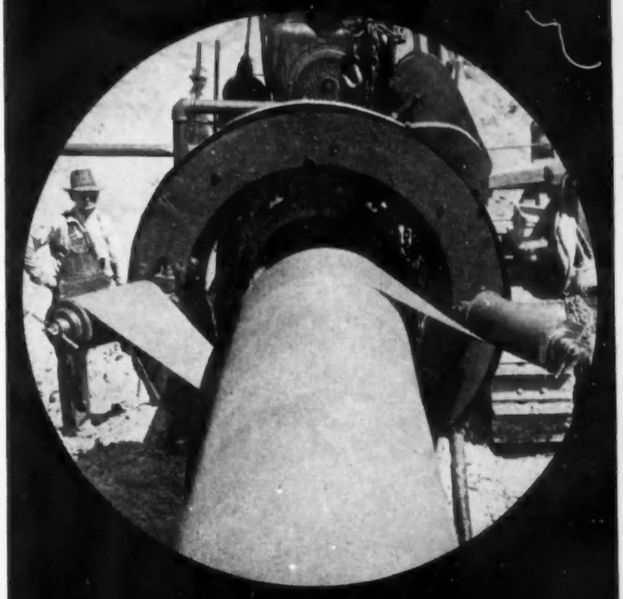
Completely equipped department for field erection

TODAY—Devoted 100% to War Production

TOMORROW—At Your Service

Plate and Welding Division
GENERAL AMERICAN TRANSPORTATION CORPORATION
SHARON, PA.

Backed by 20 years of pipe wrapping experience, the J-M machine shown is but one of several types designed by Johns-Manville to cover every kind of pipe line application. It coats and wraps pipe in a single operation . . . right in the field, as fast as the line is assembled.



The J-M Machine that wrapped the "Big Inch" in record time can guard your lines against corrosion, too, with LASTING ASBESTOS

Under the rivers, through forests and fields, the world's largest steel pipe line snakes its way . . . coated and wrapped in one operation by the ingenious Johns-Manville Power-Driven Coating and Wrapping Machine. Over hundreds of those tortuous miles the "Big Inch" is protected against underground corrosion by J-M Asbestos Pipe Line Felts.

Used on more than 50,000 miles of oil and gas pipe line throughout the world, Johns-Manville Asbestos Felts protect coatings against abrasion and distortion. The asbestos fibers, being inorganic and non-tubular, prevent capillary attraction . . . cannot rot or decay.

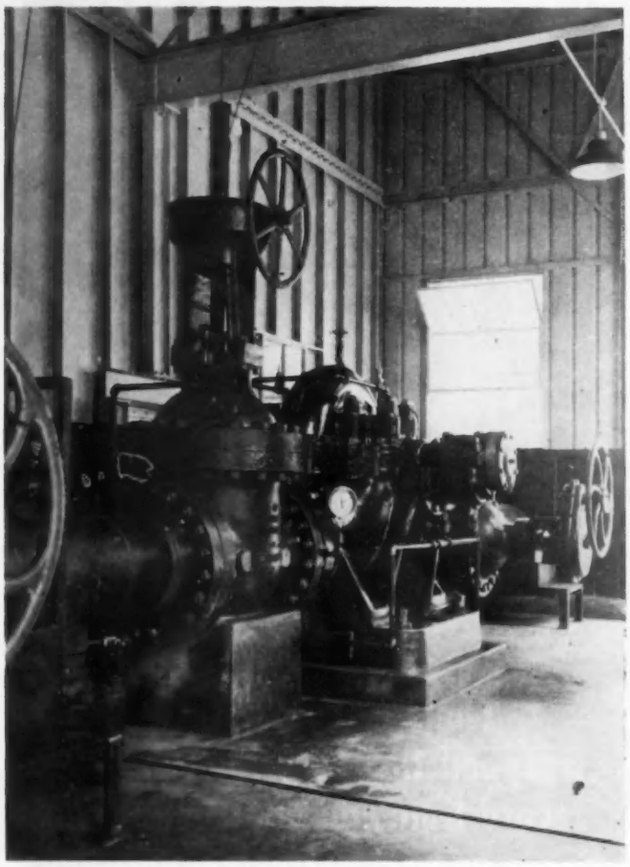
Full details on J-M Asbestos Pipe Line Felts and the J-M Coating and Wrapping Machine may be had by writing: Johns-Manville, 22 E. 40th St., New York, N. Y.

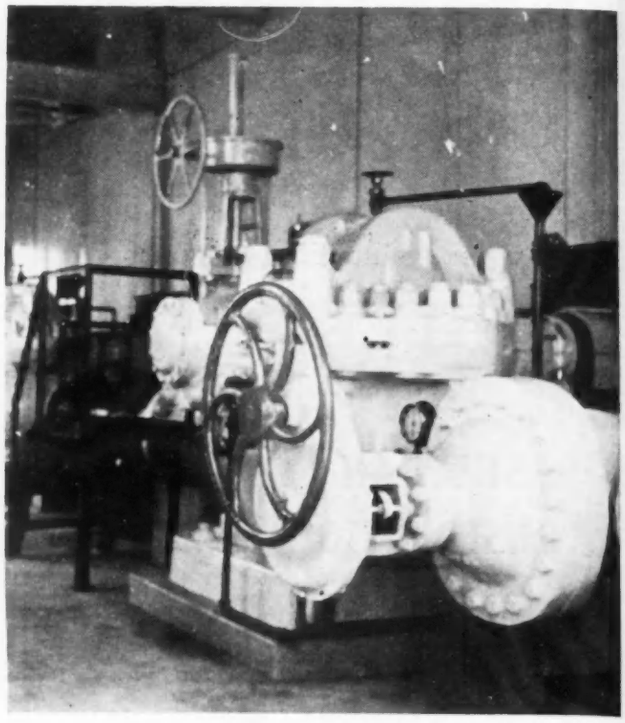
JOHNS-MANVILLE JM PRODUCTS

JOHNS-MANVILLE *Asbestos* **PIPE LINE FELTS**

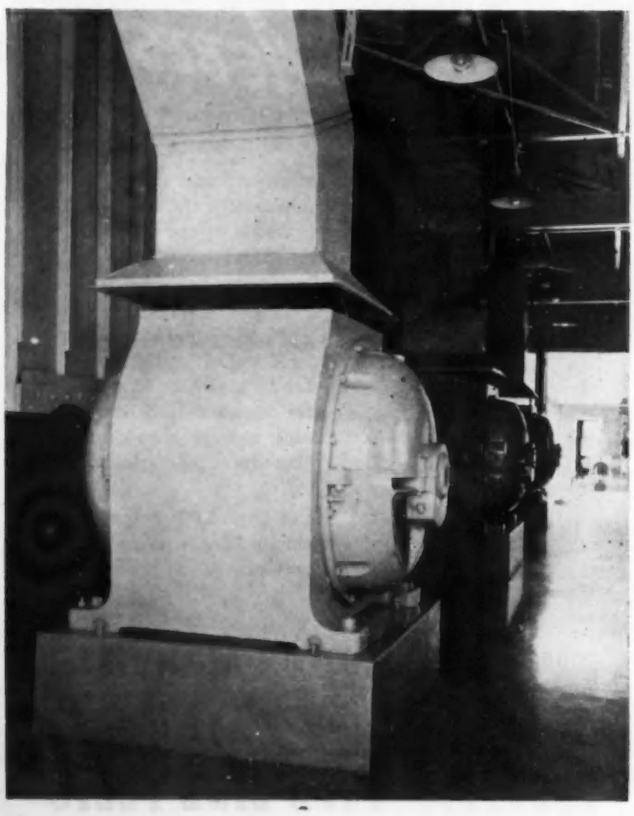
BIG-INCH STATIONS

(Photos this page approved for publication by War Department, Bureau of Public Relations)





To a pipeliner accustomed to the bulk and impression of power in the plunger-pump-equipped stations, the relatively small size of the unit which handles over 208 barrels of oil per minute, and which in three stages steps it up from 50 to 740 pounds pressure, is disappointing. The entire set-up, suction gate, pump and discharge gate take a surprisingly small amount of space. Only the height of the vertical suction valve, requiring four steps to the platform on which the operator must stand to wheel the 165 turns of the big gate stresses the size of the valves. The discharge gate, with the stem horizontal and spur gear reduction to handwheel stub shaft is set to simplify the pinching required to maintain desired discharge pressure on the pump. The two high-pressure pumps shown in the two photographs above are of different makes, though the two could the interchanged so well do the foundation bolts and flanges match. The reduction in stanby equipment is thus reduced to the minimum, regardless of the units which happened to be delivered and erected in any one station. Each pump and its two controlling valves are mounted as a unit, with any expansion or pressure changes carried over to the flexible couplings serving to isolate each of the units so formed.



☆

Ducts nearly as large as the motor bodies themselves, provide for carrying away the heated air from the power units. These ducts extend upward to a horizontal run, out of the center of which a stack rises to pass through the roof into a ventilating hood. At the junction of riser with horizontal run is installed a chain-controlled damper, by means of which the air flow from the motor may be directed either vertically or out through the farther end of the horizontal run, which makes a right-angled turn, and terminates in a flame arrestor on the pump side of the firewall. A defloating damper there permits the stream of water air to be directed as desired across the width of the pump room, providing the needed warmth for winter operating comfort.

THE WELL THAT STARTLED THE WORLD

Was Drilled With a

ROTARY RIG

If General Nathan Bedford Forrest had described the discovery of the world's first flowing oil (Spindle Top, January 10, 1901) he likely would have said: "Cap Lucas got thar fustest with the mostest!"

The now 32 billion-dollar oil industry (thanks much to the famous Lucas Gusher) concedes that Captain Anthony F. Lucas got there with the "bestes," because all previous attempts with other drilling methods than the rotary drill had continuously failed.

Many oldtimers have said: "The Rotary made Spindle Top." Others have just as loudly sworn: "Spindle Top made the Rotary." We, at American Well & Prospecting Company, are justly proud of the first statement because it was our pioneer work on the crude rotary outfit that we began perfecting six years before Spindle Top that made the Lucas Gusher possible. We agree with the latter statement because our rotary's success at Spindle Top revealed to our pioneering organization the possibilities, not only in the rotary method, but in the oil industry. By that token, we began expanding . . . ***and improving*** . . . the Gumbo Buster line of rotary drilling equipment until it is today one of the world's leading lines in this vital industry.

We proudly fly this flag, our award for excellence in war materials production.

GUMBO BUSTER PRODUCTS

- Rotaries and Rotary Drive Transmissions
- Draw Works for Steam, Electric and Power Rigs
- Rotary Drilling Engines (Steam)
- Slush Pumps (Geared Power and Steam)
- Boiler Feed and High Pressure Pumps
- Crown and Traveling Blocks
- Pump Liners and Rods
- Swivels
- Slush Pump Valves and Seats
- Line and Throttle Valves (Steam)
- Reverse Clutches
- Kelly Joints
- Rig Lighting and Utility Units

THE AMERICAN WELL & PROSPECTING CO.

GUMBO BUSTER

DISTRIBUTED BY:
Republic Supply Co., Houston
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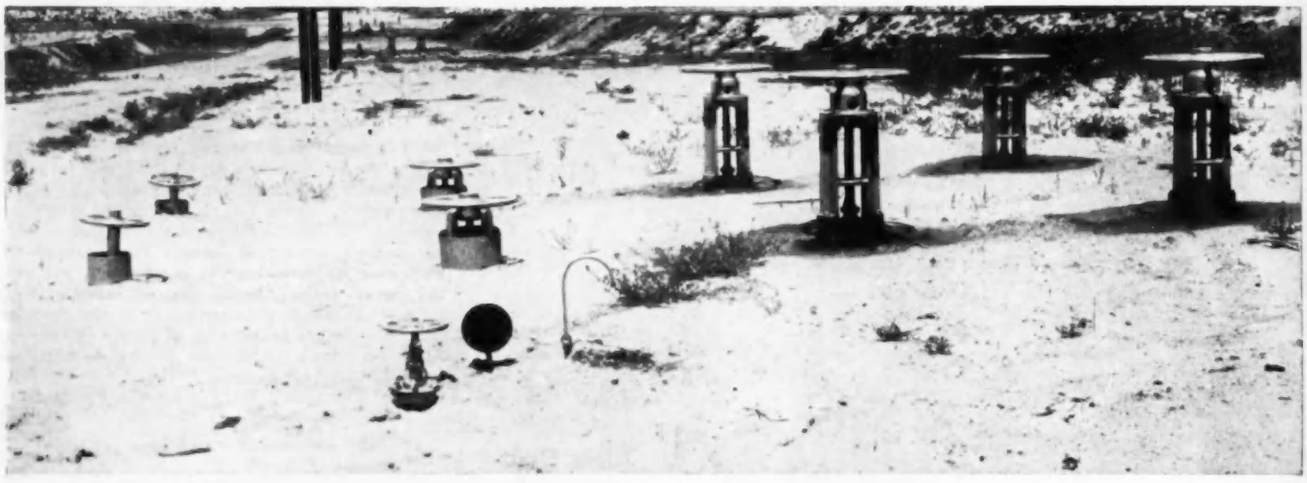
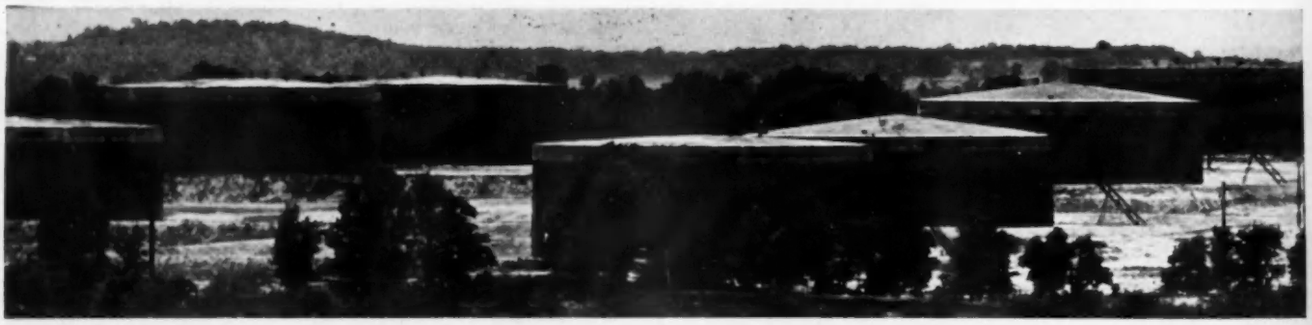
Tanks for the big line are of 80,000-barrel nominal capacity, which, with working bottoms and necessary clearance at the top for expansion, requires that a minimum of four units be emptied during a day's run. An extensive tank farm is needed to permit the accumulation of stocks for the batching system under which full-line operation is planned; it being necessary to have at least six of the tanks full of a certain grade before the batch can be dispatched, and to have at least as many units available for filling at the same time the line is drawing from a specified crude storage. The number of tanks now erected for permitting this batching is the minimum under which the system can operate to hold down contamination through too frequent changes of type of crude throughput. The tanks were collected wherever they could be found or commandeered, and erected where needed without even taking time for cleaning or repainting. (Photo approved, War Department, Bureau of Public Relations.)



Paired lines serve to bring field flow to the storage tanks and to tie in to the booster station through which all suction fluid is carried to the pumps in the main-line station. The two pairs of lines are laid at different levels, to simplify the tying in of laterals to the various tanks, the dual level setting also tending to assist in differentiating between the valves controlling the two systems, it being easy to determine between high and low level valve wheels, even under most adverse weather conditions. Gauges are set at intervals on the incoming or field-delivery lines, so as to permit a pressure check to be made against possible closed gates. Flanking the gauge is a gooseneck on a small sampling line, enabling the farm to provide a check on the crude going to the tank without separate taps on each tank delivery branch.



At the temporary Norris City terminal of the line, pending completion of the second leg of the system, batteries of tanks in all available sizes were set up to provide storage of the crude pending tank-car shipment. This tank farm, although its period of usefulness will be over when the Big-Inch, Jr., product line is completed to the Atlantic Seaboard, compares favorably in layout and appearance with many permanent installations of existing company terminals.

TO MARK PROGRESS

Controlled Quality...

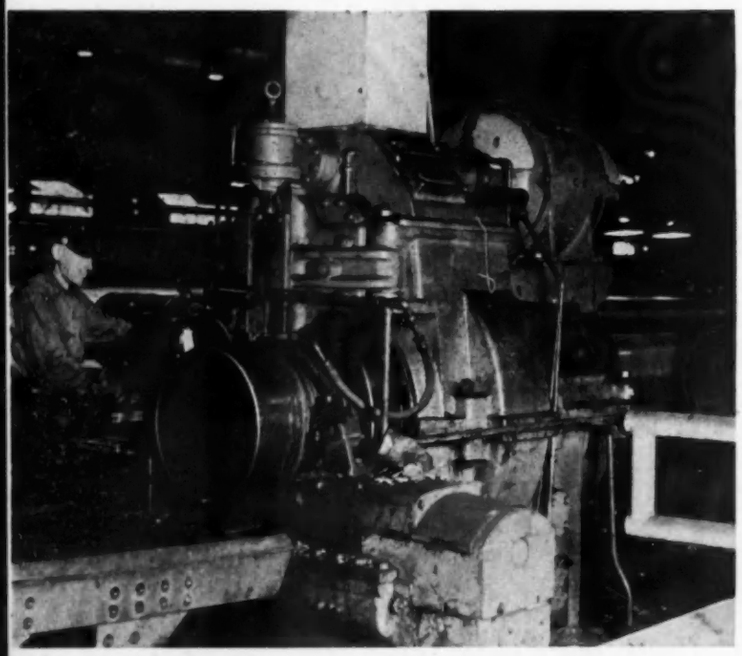
The Ladish Drop Forge Co. symbolizes over 41 years of continuous service to American Industry. Forward-looking scientific experts, outstanding manufacturing facilities and exacting metallurgical control have been combined to produce unexcelled, controlled-quality forgings.

LADISH DROP FORGE CO.

CUDAHY [MILWAUKEE SUBURB] WISCONSIN

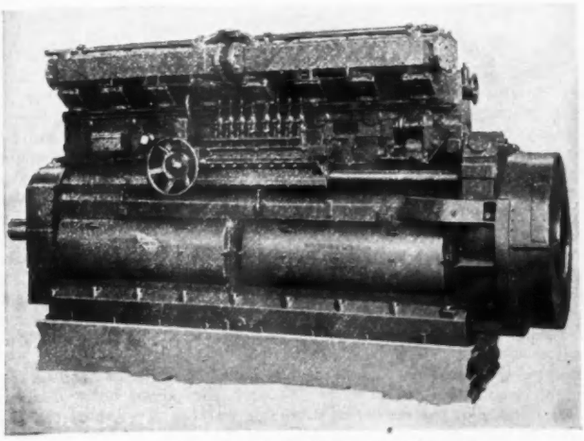
The billet of high quality steel, heated uniformly to the proper forging temperature is pushed to the rear of the piercing mill where it is gripped between powerfully driven rolls which draw it over a mandrel to form a hollow tube. The successful piercing of the billet assured pipe which would withstand the high operating pressures to which the line will be subjected. The mill rolled the pipe in lengths of more than 40 feet, allowing for trimming.

The pipe, still hot from the rolling and sizing mills, was allowed to enter the cooling tables, there to reach room temperature before being passed to the various straightening and finishing operations which it had to undergo before becoming pipe-line material.



After being checked by two initial inspections, the pipe was run through this big machine and each end cut to a smooth, clean edge. Ends which were mill-beveled for welding afforded their own protection against transportation and stringing mishaps. So well did these beveled edges withstand transportation and handling that out of the first 17,000 lengths, only 9 joints were set aside because ends were below required welding tolerance.

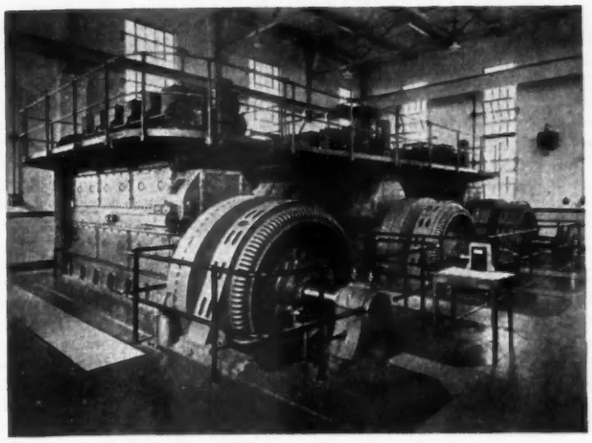
Before going to the loading platform, the inside and outside surfaces of the slowly revolving pipe were rechecked by keen-eyed inspectors. The entire surface was examined thoroughly, while powerful lights, operated from the ends of each length, brought out every detail of the pipe interior. The 24-inch pipe was so large that no difficulty was experienced in obtaining satisfactory visual examination of the inner surface without special appliances.



Alco, Four Cycle, Marine Diesel Engine (Universal Type)

ALCO DIESEL ENGINES

Alco builds high and low speed Diesel engines of 2 and 4 cycle principle for Railway, Stationary and Marine service. Alco is therefore in a position to offer an engine that best suits any application within its field.

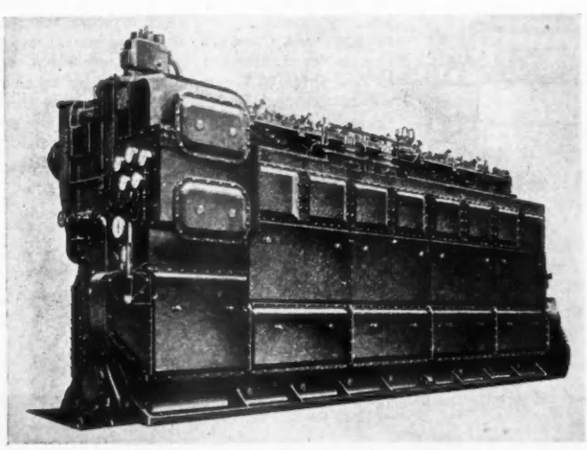


Alco, Four Cycle, Stationary Diesel Engine

ALCO DIESELS

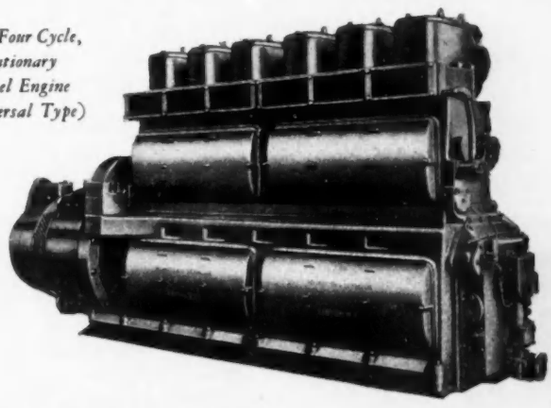
Model	Cycle	H.P.	R.P.M.	Application
6—12½ x 13	4	660	700	RAILROAD
6—12½ x 13-T*	4	1000	740	RAILROAD
6—12½ x 13	4	540	600	STATIONARY
8—12½ x 13	4	720	600	STATIONARY
6—12½ x 13-T*	4	810	600	STATIONARY
5—17½ x 25	4	730	257	STATIONARY
6—17½ x 25	4	875	257	STATIONARY
8—17½ x 25	4	1170	257	STATIONARY
4T—14 x 23½	2	720	277	STATIONARY
5T—14 x 23½	2	900	277	STATIONARY
6T—14 x 23½	2	1080	277	STATIONARY
8T—14 x 23½	2	1440	277	STATIONARY
M6—12½ x 13	4	540	600	MARINE
M8—12½ x 13	4	720	600	MARINE
M6—12½ x 13-T*	4	810	600	MARINE
4TM—14 x 23½	2	720	277	MARINE
5TM—14 x 23½	2	900	277	MARINE
6TM—14 x 23½	2	1080	277	MARINE
8TM—14 x 23½	2	1440	277	MARINE

*Exhaust turbo pressure charged by the Buchi System.



Alco-Sulzer Type, Two Cycle, Marine Diesel Engine

Alco, Four Cycle, Stationary Diesel Engine (Universal Type)

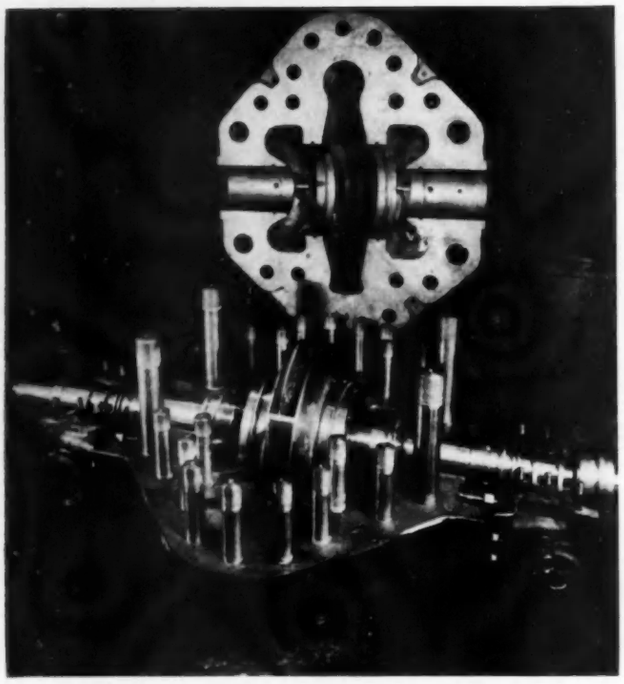


AMERICAN LOCOMOTIVE COMPANY

DIESEL ENGINE DIVISION

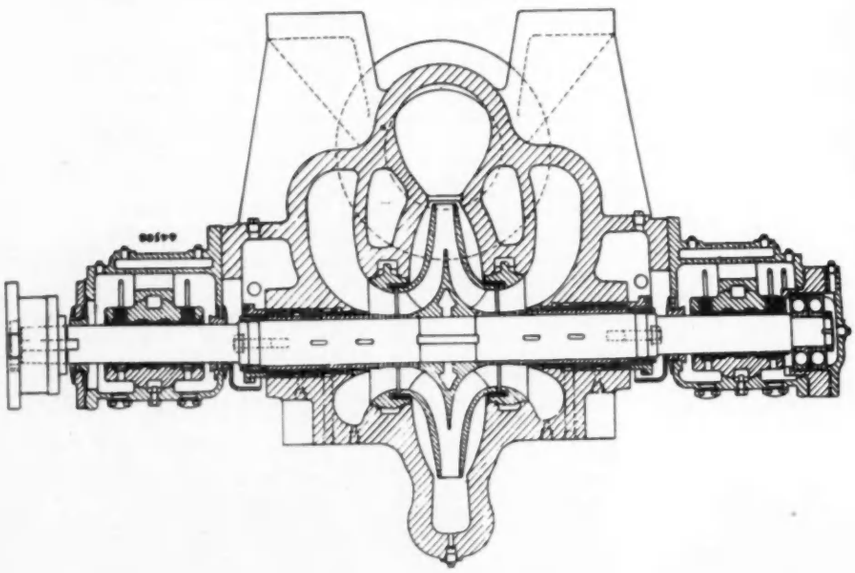
AUBURN **NEW YORK**

BIG-INCH PUMPS



The heart of the nation's lifeline is the pump unit, of which there are 78. Two manufacturers separately designed pumps to meet the exacting and unusual conditions specified by handling of record-breaking quantities of fluid. Although working individually, the two sets of engineers developed their units for complete interchangeability insofar as foundations, location of foundation bolt holes, size, flange bolt circle and spacing of suction and discharge openings and location of drive shaft with respect to pump setting were concerned. The pumps, of the single-stage, divided-suction type, were restricted to non-critical materials only, hence were cast in iron instead of other metals. Both designs were split at the horizontal center line, to simplify servicing, with only oil lines to be broken to permit access to the impeller. At first glance, perhaps the most interesting feature of the pumps is the large amount of fluid handled for such a relatively small unit.

Design specifications called for a capacity of 8700 gallons per minute, against a total head of 644 feet, the pumps being designed to carry fluids at the maximum allowable working pressure of the line, or 741 pounds per square inch. Both manufacturers attained oil tightness at the split in the casing by use of heavy studs at either side of the stuffing boxes built into the pump body, with closely spaced smaller studs around the rim of the junction. Other than the smaller ones for opening the oil line unions, but two wrenches are required on the case of either pump. The bearings are ring-oiled, with arrangement for fluid-cooling of the bearing bodies. Since the divided suction surrounds the high-pressure discharge cavity within the pump, the liquid being pumped may be used as coolant for the packing, being fed through lantern glands in the center of the packing body, and also applied at the outboard end of the packing sets. Where the fluid throughput in itself is inadequate to maintain the packing in condition, outside make-up lubricant may be added through the system of piping and cooling furnished with each unit. Each of pumps was set up on the test floor at the plant, and given a prolonged running test under conditions of pressure and service anticipated in actual station operation prior to being shipped. These pumps, specially designed for Big-Inch requirements, are said to be the largest of their type, to handle the greatest volume per minute, and to operate at the highest speed of any pumps of like proportions in any service. Since 24-hour, 7-day service is expected of the line, under capacity volumes and maximum pressures, design, testing and setting up of the units were carried out with careful attention to every detail which would contribute toward keeping in action, and thus insuring the flow of life fluid, through the long stretches of line between stations in each of which are housed three of the pumps, set up as received without respect to manufacturer, other than to instruct operators to observe the maker's specifications regarding operating temperatures and routine maintenance servicing.



☆

Acknowledgments

ACKNOWLEDGMENT of and thanks for the helpful cooperation of all those who aided in securing illustrations and compiling data used in the foregoing material on the Big-Inch line are extended to:

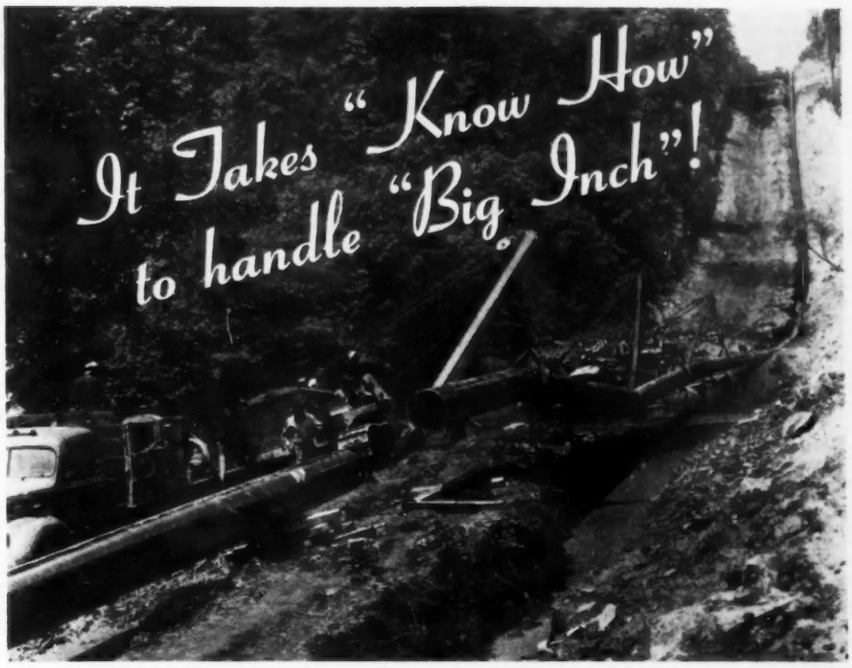
The War Emergency Pipelines, Inc., Defense Plant Corporation, Defense Supplies Corporation and Reconstruction Finance Corporation.

To the following Contractors: Anderson Brothers, O. E. Dempsey Construction Company, Bechtel-Dempsey Company, Geo. C. Bolz Dredging Company, Exeter Construction Company, Ford, Bacon & Davis Construction Company, C. S. Foreman Company, Graver Tank & Mfg. Company, I. C. Little, Midland Constructors, Inc., Midwestern Engineering & Construction Company, The L. E. Myers Company, Oklahoma Contracting Company, Pittsburgh-Des Moines Steel Company, H. C. Price Company, C. S. Seal, Sheehan Pipeline Construction Company, Ray L. Smith Construction Company, Steel Tank Construction Company, Westcott Construction Company, O. C. Whitaker Company, Williams Brothers Corporation, C. Hobson Dunn, Parkhill Truck Company, J. L. Cox & Son, and J. R. Vandaveer.

To the following Government agencies: Petroleum Administration for War, Office of War Information, War Department Bureau of Public Relations, and Eighth Service Command.

And to the following manufacturing and service companies: National Tube Company, Youngstown Sheet & Tube Company, A. O. Smith Corporation, Republic Steel Corporation, Jones & Laughlin, General Electric Company, Westinghouse Electric & Manufacturing Company, Allis-Chalmers, Ingersoll-Rand Company, Wagner Electric Company, Moloney Electric Company, Barrett Division of Allied Chemical & Dye Corporation, Wailes-Dove-Hermiston Corporation, Reilly Tar & Chemical Company, Johns-Manville Company, The Philip Carey Company, Darling Valve & Manufacturing Company, Westcott Valve Company, International Harvester Company, E. I. du Pont de Nemours & Company, Cardwell Manufacturing Company, Caterpillar Tractor Company, The Parsons Company, Aero Exploration Company, Huey & Cage, Lockwood, Kessler & Barrett, The Lincoln Electric Company, and Buckeye Traction Ditcher Company.

To all the above and many others who were helpful, our thanks and our congratulations on having been privileged to be a part of the crew through whose efforts Big-Inch is now every inch a pipe line — delivering the goods.



This is the kind of terrain WEP, Inc. entrusted to Whitaker Men in awarding the final 857-mile pipe line extension to the Eastern Seaboard. Here a Whitaker crew is speeding "big-inch" across the hills and streams of Pennsylvania.

WHITAKER PIPE LINE CREWS

Will *Know How* to Handle Your Toughest Pipe Line Assignment

THE ENTIRE WHITAKER ORGANIZATION **is justly proud of the confidence which WEP, Inc. expressed by awarding this company the toughest sections of this final extension to the Atlantic Seaboard—across the rock-ribbed mountains and boggy ravines of Pennsylvania and New Jersey.**

TO WHITAKER MEN, **even such assignments as this are "history." Equipped as they are with the latest methods and specialized equipment, Whitaker crews push on through with record breaking speed, no matter how tough the going may get.**

MANY OF THE FOREMOST OIL COMPANIES **of America have used Whitaker service—and they will all tell you: "You can depend on Whitaker for first class construction and speedy completion!"**

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OVER 20 YEARS CONTINUOUS PIPE LINE EXPERIENCE

Statistical Glimpses —Big or Unusual— About Big-Inch

By A. R. McTEE, Staff Writer

Big-Inch "Bigs"

Biggest crude oil pipe line ever laid.

Biggest centrifugal pumps of speed and type ever built.

Biggest throughput of any pipe line.

Biggest all-electric-drive pipe line in the world.

Biggest pipe-laying crew ever assembled —8,245 men.

Biggest pipe line river crossing blast ever fired — 16,000 pounds of 60 percent gelatin dynamite.

Biggest single container of crude ever built—total capacity 3,840,000 barrels.

Biggest pipe-welding job ever undertaken—183,200 welds, requiring 1,100,000 pounds of welding rods.

Biggest tonnage ever rolled on one order for one size of pipe.

Biggest valves, biggest strainers, biggest scrapers ever built for high-pressure crude line operation.

Biggest stretch of pipe laid in one day—9.02 miles.

Big-Inch "Smalls"

Smallest operating personnel per barrel-mile of any pipe line.

Smallest friction drop per barrel-mile of any crude pipe line.

Smallest stations (intermediate sites) of any pipe line, computed on barrel throughput per day basis.

Smallest tank capacity per barrel-mile of any major pipe line.

Smallest number of equipment specifications of any line—every motor, every pump, in any station absolutely interchangeable for like unit in any other station.

WHEN the welder's torch made fast the last joint of pipe in the Big-Inch, at Phoenixville, Pennsylvania, on the afternoon of July 19, thus was finished one of the great engineering jobs of all time. The greatest oil artery on earth became a reality. Spanning half a continent, this 24-inch diameter continuous tube from the southwestern United States to the Atlantic Seaboard tapped one of the richest oil producing regions in the world, completing the final link in a vast transportation system to move the oil where needed to help perpeutate a nation. In spite of all exigencies of war, climate, topography and human fallibility, 1388 rugged miles of pipe line had been laid in less than record time. Geared to the hectic speed of wartime effort, American pipeliners, as hardy a tribe of men as can be found anywhere, accomplished the seemingly impossible. They had built the line which some had said would take at least two years in half that time. They had turned schedules upside down. They had shown that nothing could stop them. Demanding the utmost in human and mechanical accomplishment, completion of this mighty project challenges the loftiest imagination; it glorifies the abilities of the men who did it. For the Big-Inch is a catalog of superlatives.

It is the largest and longest oil-carrying pipe line ever constructed. The pipe wall is three eighths of an inch thick and 24 inches in diameter, seamless steel.

The pipe was made in 40-foot lengths, each length weighing approximately 2 tons. Weight per foot was 94.62 pounds. Total steel required was 350,000 tons. Pipe for the first section, 531 miles long from Longview, Texas, to Norris City, Illinois, amounted to 4600 gondola-car loads. It was manufactured at the average rate of 5½ miles per day. More than 160,000 welds were required to join these pipe lengths into a continuous tube. Over a million pounds of welding rods were required for this work.

Total capacity of the line is 300,000

The giant size of the 24-inch diameter pipe is well illustrated in this view. The big pipe provided a better walking surface than the rough and rocky terrain in many instances.

OIL TO FILL EVERY TANKER in the Combined UNITED NATION'S FLEET

The additional oil made available by Lane-Wells Services since 1932 could more than fill every tanker in the combined United Nation's fleet. We are working hand in hand with 3,500 oil companies in producing vast quantities of much needed oil. We are proud of the part our men, our equipment and our facilities are playing in helping win the war.

Lane-Wells Services and products are at the command of American oil well operators in their fight to produce *more* oil with *less* steel. The vast fund of practical experience gained from more than 45,000 successful Gun Perforating jobs is assurance that—if you want the job done right, call "Lane-Wells."

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LANE WELLS COMPANY

TECHNICAL OILFIELD SERVICES

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24-HOUR SERVICE • 30 BRANCHES

Only LANE-WELLS CAN PROVIDE THIS *3 way* OIL FIELD SERVICE

★

RADIOACTIVITY LOGS
—To locate zones and check measurements

★

GUN PERFORATING
—To open zones, increase production

★

PACKERS—BRIDGING PLUGS
—For efficient, economical operation

barrels daily, a volume equivalent to that delivered by the daily arrival of 15 trains each of 100 tank cars. The line holds 2773 barrels of oil per mile. To merely fill the line from one end to the other and provide working stocks before one barrel of oil can be delivered at the eastern terminus requires roughly 4,000,000 barrels. At present rate, this is equal to about one day's output of the United States. When the system is making deliveries, a column of oil of more than 3,750,000 barrels will be constantly moving along the line.

Storage tanks already installed on the system have a total capacity of 5,000,000 barrels of oil.

Oil flows through the line at the rate of about 100 miles a day. It will take 14 days for the oil to reach the New York area from Texas with the line working at full capacity.

Although mountain crossings were at the narrowest possible point, some of the grades seemed almost "vertical" as the contractors saw them; for example, the 4000-foot elevation scaled in going over Tuscarora Mountain in the Alleghenies. At Rattlesnake Ridge the rise was 3500 feet "straight up" from the valley. So steep were many grades that the "cats" seemed to stick straight out from the mountains at right angles.

River crossings were numerous and

Valves on the line weigh 7½ tons and are 12 feet high.

difficult, as can be imagined when it is realized that the line crosses 30 principal streams and 200 smaller ones. Among the rivers is the Missisippi. Frequent floods were encountered and there were some bad wash-outs. On the Texas end of the line, considerable swampy country was traversed and sometimes the crews worked in water literally "up to their necks."

All surveys for the line were first made by air, with ground crews following to determine the exact route.

Work on the first leg, Longview to Norris City, started on August 3, 1942, with the laying of the first joints of pipe by three spreads between Longview and Little Rock. Oil was first pumped into this section of the line at Longview on December 31, 1942, and reached Norris City on February 13, 1943. This section of the line was formally finished on February 20, 1943. The second section from Norris City to Phoenixville was started December 16, 1942, and finished on July 19, 1943.

Record pipe laying was on October 21, 1942, when 9.02 miles was laid down and welded. The average rate of laying was about 6 miles daily.

First oil moving through the line was destined for the New York and Philadelphia harbor districts, with some going to New England destinations, notably Boston and Providence.

Width of the right-of-way is 50 feet and comprises approximately 8412 acres.

The ditch cut for the pipe was 3 feet wide and 4 feet deep. Total excavation amounted to more than 3,140,000 cubic

HIGHWAY OF NATURAL GAS FROM FIELD TO INDUSTRY

. . . THE PIPE LINE

HOUSTON PIPE LINE COMPANY has prepared itself for years for just such natural gas demand as exists today on the Texas Gulf Coast. Its far-flung pipe line system is strategically located across the length and breadth of the Texas Gulf Coast, serving countless new industries that have sprung up in recent years. This ability to serve these important industries without delay, due to long-range planning, is an important phase of this region's war production achievements.

After the locating of a prospective gas well, the drilling of it, and the processing and controlling that must take place, natural gas still must be transmitted to industrial centers. This all-important fourth step is the function of the pipe line, that highway of natural gas from gas field to the fires of industry. Today's modern ditching machines prepare in a day what once took weeks for "muckers" to do with pick and shovel. Today's modern welded steel mains are a vast improvement over the old-time pipe lines with countless joints and connections. Modern welded mains permit the transmission of more gas at higher pressures, an important feature as the demand for natural gas has grown to astronomical proportions here on the Texas Gulf Coast.

Houston Pipe Line Company's ability to serve is backed by its dependable supply of natural gas from many Gulf Coast fields, by trained personnel, modern equipment, financial stability, and by an eighteen-year record of unfailing service. Its Research Department is in a position to furnish facts and figures about this region's many advantages and resources to those firms even now looking ahead to the post-war expansion that is inevitable in this rich and rapidly expanding Texas Gulf Coast country. For this information, address your request to Research Department, Houston Pipe Line Company, Petroleum Building, Houston, Texas.

For Victory Buy
United States War Savings Bonds

HOUSTON PIPE LINE CO.
Subsidiary of Houston Oil Company of Texas
GEO. A. HILL, JR., President
Wholesalers of Natural GAS

Emergency Steels You Can Trust In ANY Emergency!

CIRCLE Ⓛ National Emergency Cast Steels are "emergency" materials not only in the sense that they save critical alloys—they also possess the quality and integrity to meet the severest tests of operation. All have been approved for production only after measuring up to critical standards based upon the functions each steel is intended to perform.

Lebanon foundry engineers and metallurgists . . . who have had close contact with war production requirements since the beginning . . . will gladly advise you which of these steels fits your requirements. Design, thickness of section, required hardness and shock resistance are always thoroughly studied. The consultation services of these foundry engineers and metallurgists are available upon request to interested organizations.

LEBANON STEEL FOUNDRY, LEBANON, PA.

ORIGINAL AMERICAN LICENSEE GEORGE FISCHER (SWISS CHAMOTTE) METHOD

SEND FOR FREE COPY OF HANDY "MINUTE REFERENCE"

No fumbling...no groping for information! Simply open this *file-size* Lebanon reference chart and the essential facts about Circle Ⓛ National Emergency Cast Steels lie before you—on a single spread. Shows comparative specification designations, nominal analyses, minimum physical properties and heat treatment. The complete chart is available to executives, engineers and metallurgists. Write for your copy.

CARBON STEELS

Lebanon Designation	U. S. Navy Designation	Federal Designation	Emergency ASTM Designation	Similar AISI Type No.	Similar SAE Designation	Similar NE Designation	Nominal Analysis C	Si	Mn	Ni	Cr	Mo
Ⓛ B	49-S-1 (INT) Grade B, C, Cw, D	QQ-S-681b Grade X, 0, 1, 2	EA-A-27-42 Grade B-2 EA-A-215-41 Grade EA-2W, EB-W, EN-2W EA-A-27-42	1025	1025		.25	.40	.65			
Ⓛ A	49-S-1 (INT) Grade A	QQ-S-681b Grade 3	A-27-39 Grade H	1040	1040		.40	.40	.75	†	†	†
Ⓛ C				1040	1040		.40	.40	.75	†	†	†
Ⓛ D				1040	1040		.40	.40	.75	†	†	†

*NE ALLOY STEELS

Ⓛ 205 (A)	49-S-1 (INT) Grade F	QQ-S-681b Grade 4A-2	EA-A-148-42 Grade A-2			NE8630	.30	.40	.80	.60	.60	.20
Ⓛ 205 (B)		Grade 4C-2	Grade C-4			NE8630	.30	.40	.80	.60	.60	.20
Ⓛ 205 (C)		Grade 4C-3	Grade C-2			NE8630	.30	.40	.80	.60	.60	.20
Ⓛ 205 (D)		Grade 4C-4	Grade C-3			NE8630	.30	.40	.80	.60	.60	.20

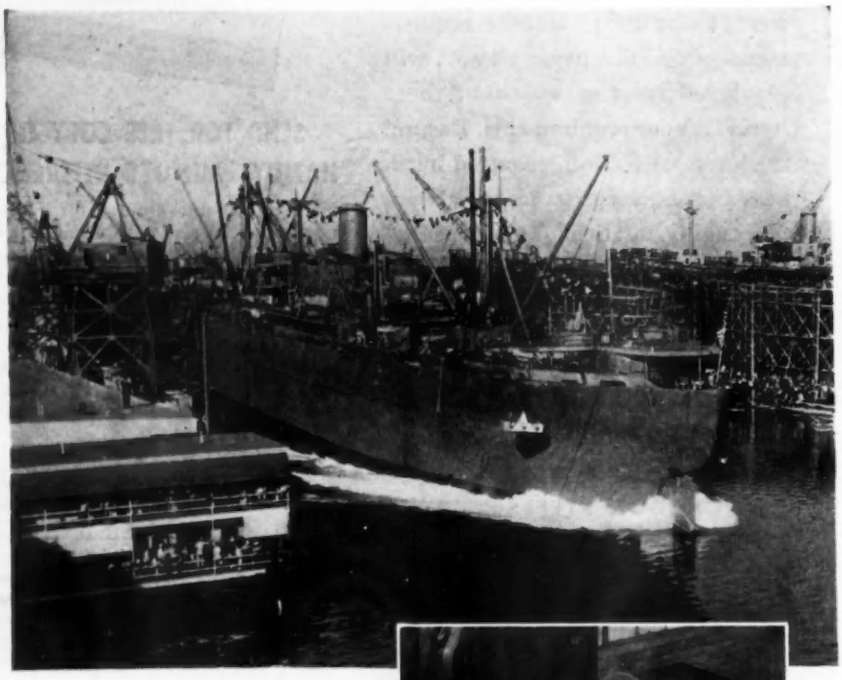
† Residual alloys contained.
* Supplied with approval of W.P.B.

NOTE: Other Ⓛ standard grades of alloy steel castings available with proper priority and W.P.B. approval.

LEBANON *Stainless and Special Alloy* **STEEL CASTINGS**

THE OIL INDUSTRY WILL ALWAYS BE OUR NO. 1 CUSTOMER, BUT

VICTORY FIRST!



A milling machine was needed for this job, but all O-C-T milling machines were tied up on other jobs for the Maritime Commission. So, an idle slotting machine with a small electric motor to drive the cutter got the job done. Another example of O-C-T ingenuity!

First things come first. Right now, winning the war takes precedence over everything else and we have dedicated our entire resources to that goal. Accordingly, you might be asked to wait for that O-C-T blowout preventer, valve, well head or fittings; or you might be asked to buy repair parts that will enable you to make your old equipment serve your needs temporarily. In any event, we want you to know that we haven't thrown you over for a new and bigger customer . . . that we sincerely appreciate your patronage which has enabled us to grow and be of real service to our country in time of distress . . . that you will always be our No. 1 customer.

O-C-T proudly flies the prized Treasury Flag.

QUALITY O-C-T PRODUCTS
"Selling Through Leading Supply Stores"

OIL CENTER TOOL COMPANY

HOUSTON, TEXAS, U·S·A

Export Representative: Val A. Wittich, 30 Rockefeller Plaza, New York, N. Y.

yards of earth, with backfill of probably two thirds this amount.

Pumping equipment consists of electric motor-driven centrifugal pumps. Main-line motors, of which there are 78 on the system, operate at 1800 revolutions per minute and develop 1500 horsepower each. All full main-line stations except Phoenixville are equipped with 3 motor-driven pumping units. Phoenixville has 5 such units. Oil enters the pump suction at a pressure of 30 pounds and is discharged from the station at 725 pounds. There are 26 main-line stations, averaging 50 miles apart. Specially designed pumps have a capacity of 8700 gallons per minute.

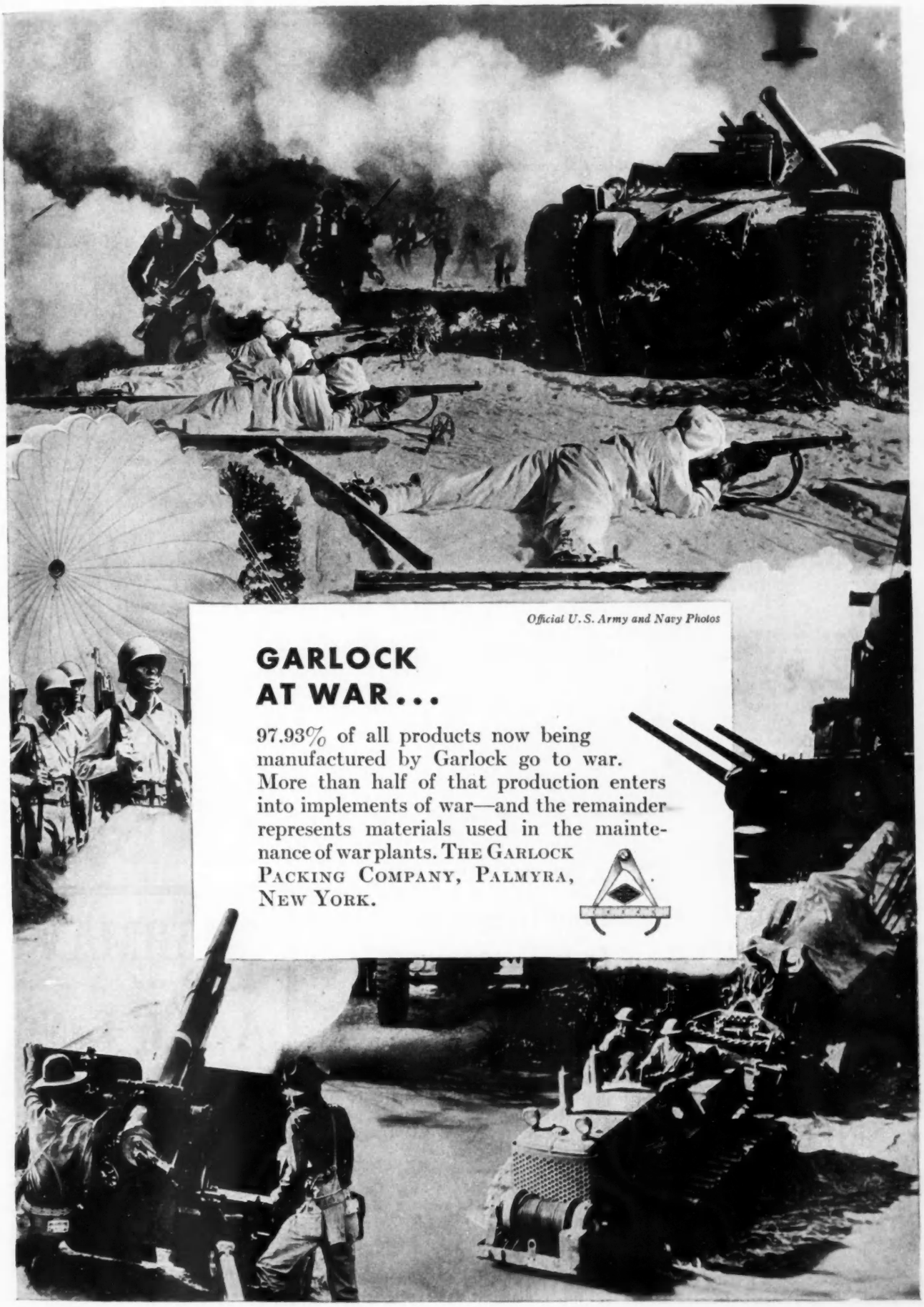
Oil-flow control through the line is provided by gate valves, which must operate under a working pressure of 740 pounds per square inch and are tested to withstand pressures of 1500 pounds per square inch. They are bevel-gear operated and equipped with ball bearings and the bodies are made of nickel-chromium-molybdenum cast iron.

At one of his press conferences, PAW Administrator Harold L. Ickes reported, in response to a question put by a reporter about the Big-Inch, that a certain section was awaiting the arrival of "a valve." "Mental visions of a parcel post package may have been conjured up in the mind of the questioner," says Ickes. "Not everyone may have been aware that this particular valve weighs 7½ tons and is 12 feet high!"

Construction of the line epitomizes oil transportation for the past two years. When submarines cut short all tanker shipments of oil to the east, less than 100,000 barrels were moving overland. A year later this trickle had grown to more than 1,000,000 barrels, a sizeable stream, and at the time Big-Inch was finished, the stream of oil had swollen to 1,400,000 barrels moving across the country. All shipments are scheduled to pass 1,500,000 barrels by the beginning of autumn this year.

Ickes has hailed the completion of Big-Inch as "A triumph of teamwork unsurpassed." The entire Petroleum Administration for War is unanimous in that the line "represents ingenious engineering — generous cooperation of government agencies and private oil companies—managerial and technical efficiency of the highest order —and hard but enthusiastic work of thousands of mechanics."

Over and above all the line is more than a metal conduit for moving oil; it is a symbol of American spirit, an expression of a determined people whose purpose is freedom. It was built, not like the ancient pyramids, by slaves under the lash of whips to perpetuate the wonders of tyrannous kings, but by freemen supported by the inspiration of freedom, to help sustain that freedom.



Official U. S. Army and Navy Photos

GARLOCK AT WAR...

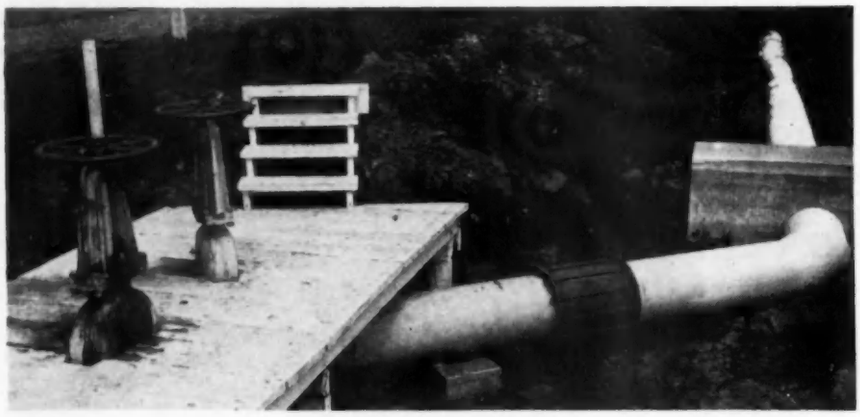
97.93% of all products now being manufactured by Garlock go to war. More than half of that production enters into implements of war—and the remainder represents materials used in the maintenance of war plants. THE GARLOCK PACKING COMPANY, PALMYRA, NEW YORK.

PRACTICAL OPERATING *Hints* FOR THE PIPELINER

$5.00 will be paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, *Houston.*

1. VALVE SETTINGS

Accessibility Adds Speed to Shifting



Erection of a permanent platform across the lines to a station so as to bring the two main gate wheels at convenient height for most advantageous turning saved energy and time.

THE hazard of attempting to maintain footing on a pipe line while wrestling with a stubborn gate wheel is a frequent cause of injury to station personnel, especially during cold or wet weather.

One terminal circumvents this hazard by building substantial platforms at valve stations, erecting the structures to a grade which provides safe footing above the level of the pipe lines, and which brings the valve wheels at the most advantageous height for quick spinning and maximum leverage for starting or ending cycle of gate operation.

To provide access to the gate bodies for checking the tightness of flange bolts and other necessary servicing, the platforms are cut so as to be removable simply by taking off the valve wheels and lifting the wooden structure vertically to provide required work space. This ready portability is obtained by dowelling the connection between platform and supports, or by setting the legs into sockets in concrete footings.

Hardware cloth, soldered into flow recesses of pump head, prevents entry of debris and eliminates need for frequent pulling of well to insure proper flow of fluid to unit. Use of the wire inserts in pump openings permitted much trash to drop clear and kept remainder outside close valve clearances within pump.

2. WATER SUPPLY

Built-In Screen Cuts Down-Time

MUCH trouble was caused at the water well supplying one station through rod splinters, pieces of worn cupleathers and other debris getting under valves and rendering the pump inoperative. So frequent was this difficulty encountered that the pump was pulled two or more times per month to put it again in working condition.

To protect the pump against such material as had gotten within the well screen, the unit was worked over and ¼-inch hardware cloth soldered within all openings through which fluid was intended to pass.

This restricted the area for free flow, but the reduction was not severe enough

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to impair the efficiency of the pump, while the screen, halting the motion of debris toward the valve, permitted much of such trash to drop out and stopped the remainder, with the result that the pump operated over a period of several years without requiring pulling.

When installing the hardware cloth, it was necessary only to be sure that it was kept within the working clearances of the pump, and that it did not interfere with normal setting or releasing operations.

3. RAG CONSERVATION

Steam Unit Reclaims Clothing and Wipers

Drum-type washer utilizes steam jet to swirl rags and insure thorough action of cleaner.

CONSERVATION of wiping rags and work clothing, especially those remaining after the annual overhaul job, requires thorough cleaning to render the articles again usable. With commercial laundries swamped with other and less exacting work, it is increasingly difficult to get the washing job done outside the plant.

Use of petroleum solvents, while effective in removing the greases picked up during cleaning operations, is not recommended for clothing or rags which must be used over painted surfaces, due to possible effect of oily residue on skin or paint.

One station built its own steam washer, welding up a drum capable of carrying moderate pressures, and having a hinged door in one side with provision for obtaining tight closure. Steam, water and drain lines enter the base of the drum, with vent at top. By adjusting the input of steam and water, the clothes may be swirled around in the unit, or may be left to soak for any desired time. Rinsing is accomplished in the same manner, with a convenient wringer nearby to remove excess water and speed the drying process.

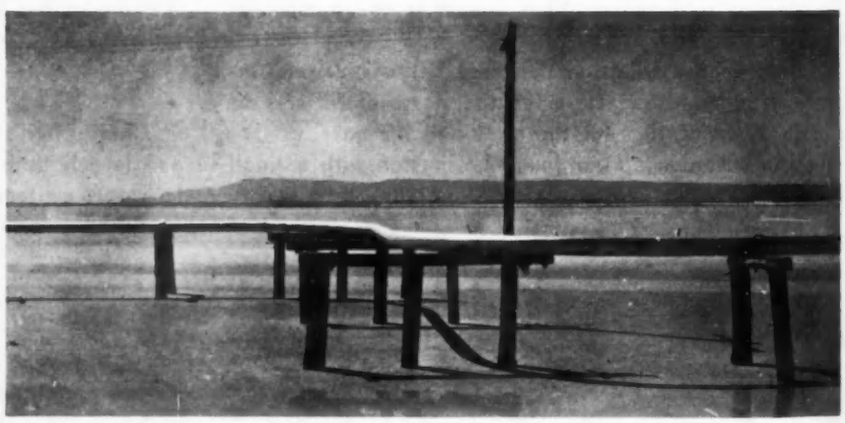
4. LINE SUPPORTS

Elevated Crossing Cuts Lake Damage

WHERE an oil pipe line crosses an arid section of the country containing highly mineralized sump holes and lakes which are dry most of the year, wood structures are provided to raise the pipe well above the surface. Since the difference in temperature over the twenty-four hours of a summer day is quite large, pipe is in almost continual motion, due to expansion and contraction.

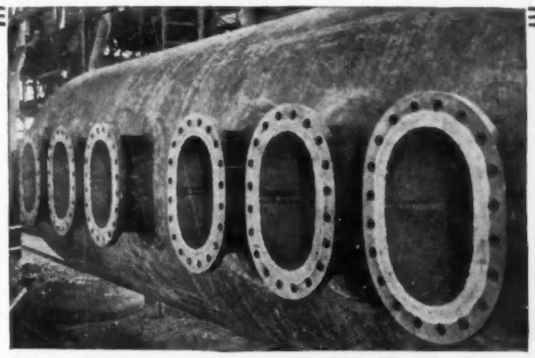
Long radius "S" swings are placed in the line on both sides of each lake to provide compensation for the line movement. So that the line will not creep from the supports at the swings, heavy iron retaining fingers are bolted to the supporting cross members. The fingers are placed in sequence along a wide sweeping arc so that, upon contact by the pipe with one finger, friction and pressure bring other sections of the line into movement which distributes the strain over enough of the line to prevent rupture.

The cross members supporting this section of system are smooth on the top surface so that the line may slide easily.



Carrying a line loop on wide flat horses eliminated corrosion and permitted expansion stresses to equalize without distorting fittings. Anchorages limit travel at ends of curved section.

RESISTS CORROSION AT ALL POINTS OF CONTACT



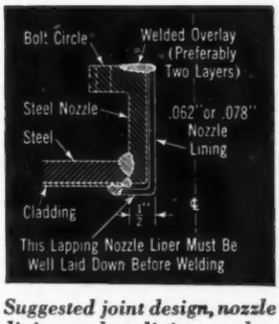
Fractionating tower, fabricated by Edge Moor Iron Wks., Inc. Diameter 6', overall length 43'6", top 15'6", section of Monel-clad 22/32" plate, cladding 1/8". Manways and covers also lined with 1/8" Monel, plug welded.

IN many important applications, the overlaying of Monel on steel permits maintaining continuous corrosion-resistant surfaces.

For example, in fabricating this fractionating tower of Lukens Monel-Clad steel plate, it enabled the manufacturer to protect the steel flanges with corrosion-resisting Monel. Thus, every part of the equipment which comes into contact with the harsh distillates resists their corrosive action.

Steel flanges are overlaid with Monel, first, by undercutting them 5/32" to 3/16" for a width of 1" or more, depending on the size of flange involved.

The first weld layer is deposited with 1/8" or 5/32" dia. No. 130X Monel electrode using string beads. Weaving is to be avoided because this technique makes a larger weld puddle . . . permits a higher percentage of iron to be diffused into the weld metal . . . lowers its corrosion resistance. Similarly, excessive penetration should also be avoided.



Suggested joint design, nozzle lining to sheet lining overlaying flange faces.

All flux should be removed from the first layer before depositing. Subsequent layers which may be laid down with a weave to produce beads up to 1/2" wide. Larger electrodes, 3/16" or 1/4", may now be used.

Monel overlays made with No. 130X electrodes on mild steel have a hardness of 150 to 160 Brinell (3000 kg.).

For full information on welding Monel, write for Bulletin T-2, "Welding, Brazing and Soft Soldering of Monel, Nickel and Inconel." The International Nickel Company, Inc., 67 Wall Street, New York, N.Y.

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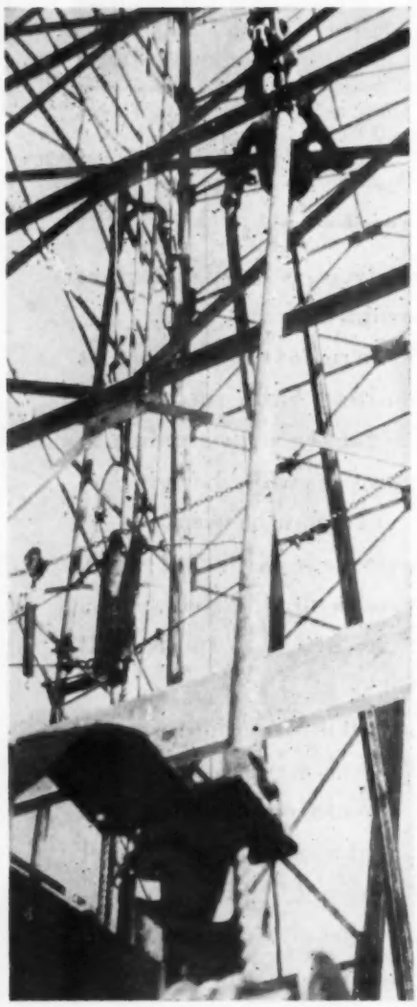
PRACTICAL OPERATING *Hints* FOR THE DRILLING RIG

$5.00 will be paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, *Houston.*

1. ROPE CARE

Guide Checks Whip At Derrick Girts



Flared ends guide derrick rope through this device to cross safely through angle braces.

TO protect the derrick line at that section of its travel where it must pass from within the derrick structure to a point just above the cathead, one contractor sets a joint of pipe through the girt, threading the line through the pipe and the two flared fittings at the ends which prevent striking of the line against a sharp edge or an abrupt change in direction with consequent chafing.

The guide is simply atached to the upper contacting derrick girt with U-bolts passing around the derrick angle, while a projecting bracket carries the lower and permits the required spotting of the line over the cathead sheave.

Where clearance between cathead and lower end of the guide is limited, setting a small sheave in the end of the flared fitting on the side to which the line is pulled when wrapped around the cathead eliminates a possible source of friction or undue wear at that point.

The unit not only protects the line against fraying or chafing against the derrick members, but also serves to subdue whipping, insuring more even winding of the line on the cathead, with consequent lessening of peak strains on the line.

2. MUD HANDLING

Anchoring of Jet Maintains Mix Ratio

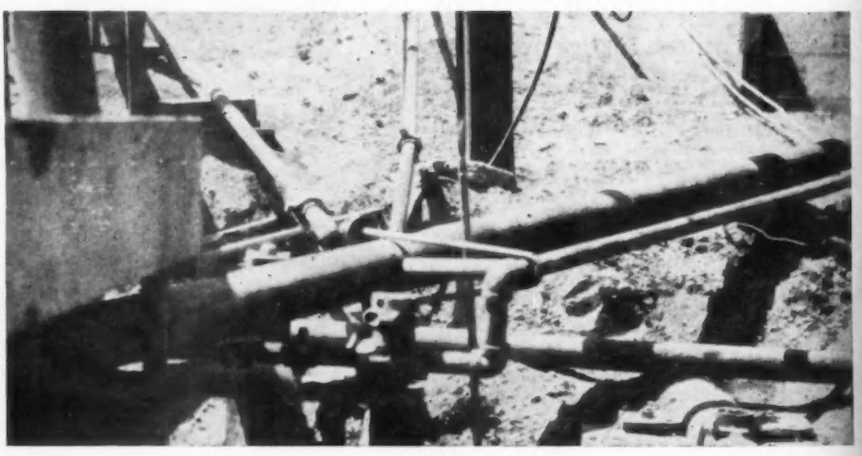
WHEN mixing drilling mud at some distance from the pits, creep of the water line due to its length may be induced by pump pound or because of temperature differences in the fluids handled, so that frequent moving of the line may be necessary to control the mixing jet to attain desired proportioning.

By anchoring the jet line to the mud mix line close to the mixer, the relative position of flow line and unit is maintained unchanged, and all slack or line change is absorbed in the long section of free pipe between pump and clamp. Where the two lines do not lie closely together, such a clamp is made of a long U-bolt, with plate to cover the larger line, a spacer nipple being welded to the mud line, or for quick transfer if desired, simply placed over small bosses welded to both lines, and retained in position by tightening the U-bolt nuts.

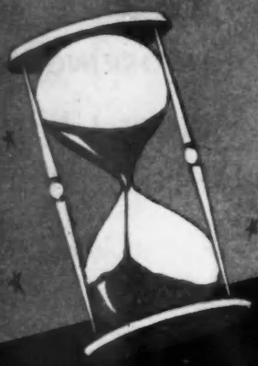
3. FLUID LINES

Union Mounting Checks Vibration

VIBRATION of the mud pump, especially when skid-mounted and on unstable ground, tends to concentrate torsional stresses in the mud delivery line at the point where it ties into the pump casting. To prevent this source of possible pump damage, it is sometimes thought necessary to carry the line downward to the skid, and to clamp it there throughout its length of contact with the pump mounting. This plan exchanges concentrated loading at the pump body for flexure through a joint



When line shifting varied jet setting, a clamp and spacer nipple of proper length provided a means for rigidly maintaining desired alignment between jet and base of material mixing hopper.



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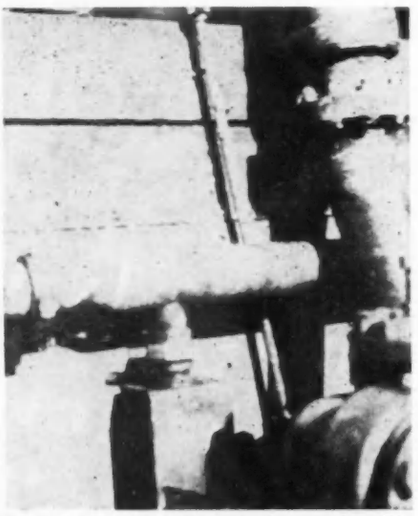


Setting a union on blind nipples permits shift of line with minimum of connections to break.

of pipe, and protects the pump investment.

Such a plan, however, holds the line against the skid and makes alignment of fittings difficult, as well as hindering work on unions or other connectors when rigging up or tearing down. One contractor secures skid mounting of the mud line without the use of U-bolts or skid clamps, and maintains adequate working clearance around the line by welding a short nipple, blind, to the lower surface of the mud line, and a similar stub at a point on the adjacent skid member. On these is fitted a pipe union so arranged that when tightened it serves to hold the mud line to the skid through the medium of the two stubs. For changing the line it is necessary only to break out the union, leaving half each on the skid member and on the mud line. Matching of the union is assured by pipe length at the time of rigging up on the next location.

4. WORKING CONDITIONS

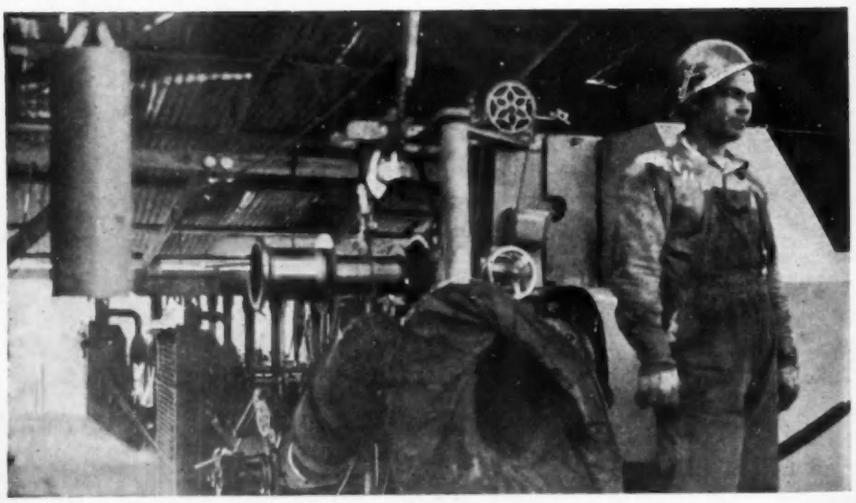
Heater Utilizes Radiator Warm Air

WHERE drilling conditions prevent use of the usual open-fire heater on mechanical rigs, one contractor manages to keep the driller's stand warm with hot air from the radiators on the drilling engines.

A heavy canvas tube, with light wooden hoops to keep it in shape, is set up with the open end just behind the driller. The other end terminates in a hood which encloses the fan assembly and the back or engine side of a radiator. All air drawn through the radiator and thus heated is blown out around the driller, giving him the benefit of the warm air blast and maintaining the desired working temperature of the floor without introducing fire hazard.

The same system, much more easily inclosed, is available if a reverse action fan be secured, to blow through the radiator from the engine side, and setting up a collector in the open space ahead of the unit. Such a set-up does not interfere with or hamper any servicing on the engine, as does the method where the hood encloses the fan.

In any attachment or extension on the engine cooling system, however, it is necessary to observe caution lest the hook-up cause backpressure or restriction of air flow to or from the radiator. Any choking of the cooling rate, especially on engines operating at full load, may quickly be reflected in overheating, loss of lubricant, boiling of the coolant, or even in an apparently unwarranted breakdown of the power unit.



A canvas tube, held open by barrel hoops or other stiffeners, serves to bring exhaust air from radiator to spot directly behind driller's stand, as fireproof heating method on gaseous site.

☆ ☆ ☆ ☆ WASHINGTON ROUNDUP ☆ ☆ ☆ ☆

OPA Turns Down Crude Price Raise Second Time

»

OPA Labor Committee Slaps at Oil Price Pleas

»

Ickes Seeks Investigation to Try To Force Price Increase

»

New WPB and PAW Sections to Speed Up Materials

»

East Will Get More Gasoline; Rest of Country Less

»

Essential Oil Work Put On a Special Deferred Basis

»

By B. F. LINZ
Washington Correspondent

☆ ☆ ☆ ☆

ANOTHER chapter in the long tale of PAW's effort to secure a crude-price increase was written last week as Ickes, turned down for the second time by Brown, carried his case to Stabilization Director Vinson with an appeal for support.

Gagged by an order by War Mobilization Director Byrnes forbidding him to discuss rationing, Ickes for the first time found himself unable to voice his views on Brown's position or to make public either Brown's second letter of refusal or his response.

The Labor Policy Committee of OPA, a purely advisory body with no official standing, was less reticent, however, and embarrassed OPA no end by issuing a statement supporting its stand on the price increase and accusing Ickes of engineering a billion-and-a-quarter-dollar "steal" for the big oil companies.

The statement, mimeographed privately, was distributed to news correspondents in the capitol in OPA official envelopes, with the result that they asked the price agency "how come?" After some reportedly heated discussion, the committee issued a supplementary statement on official paper, explaining that it was not part of OPA and had acted only as a representative of organized labor.

With primary suppliers in District 1 ordered to reduce gasoline deliveries by 25 percent, as a result of the interruption of suppliers by the Texas hurricane—a situation which Ickes said would be remedied quickly—motorists in the area were uncertain over the promised increase in rations, but OPA officials indicated they would go on the air at the weekend to announce an expected increase in coupon values to three gallons in the East and a cut to that level for the rest of the country, together with the lifting of the Eastern ban on pleasure driving.

Important to producers in the week's news was the setting up by PAW of a new unit in the materials division to speed up the movement of materials to equipment manufacturers and supply dealers, through cooperation with a corresponding unit established in WPB.

PAW also had in preparation an amendment to its materials redistribution plan which would permit suppliers to buy surplus tubular goods from operators even though they did not have immediate resales in sight — in other words to accumulate stocks on which other operators could draw without formality. Heretofore, an operator has been permitted to sell surplus to a supplier only when the latter had an immediate resale to another operator all set.

Ickes Asks Vinson for Investigation of OPA Refusal to Increase Crude Price

Investigation of APA's position on crude prices was asked of Stabilization Director Fred Vinson last week by Petroleum Administrator Harold L. Ickes following OPA Director Prentis Brown's second refusal to consider PAW's recommendation for a 35-cent increase.

Brown's letter, practically paralleling that of last May, reached PAW about 3 p.m., August 7, a Saturday, and by the same time the following Monday a caustic response was on its way to OPA and Vinson had been asked to adjudicate the controversy.

The price administrator offered no new arguments in support of his refusal to grant the increase, but reiterated the suggestions made in his original letter for a higher price for wildcat crude, government loans for drilling wildcats and price relief in specific areas where such action was shown to be necessary.

His letter (not made public), however, carefully avoided the use of the term "wildcat," referring to "new wells drilling in unexplored fields" in discussing loans.

Coming on the heels of Congressional investigations which had developed that domestic oil production had practically reached its peak and soon would begin to decline if new substantial discoveries were not made, Brown's adamant refusal to consider what PAW officials and experienced oil men said was the only effective method for encouraging exploration was received with deep dissatisfaction in Ickes' office.

While, at the time, he refrained from comment, the oil administrator let it be known that he had taken the matter to Vinson and that, if necessary, he would carry it to War Stabilization Director James F. Byrnes in an effort to force Brown to shift his position.

OPA Labor Committee Charges Oil Trying a "Steal"

Charging that the "big oil interests," with Ickes' connivance, are attempting "to put over a billion-and-a-quarter-dollar 'steal'" on consumers, the labor policy committee of OPA opposed the proposed increase in a lengthy statement August 10.

The increase, said the committee, which is headed by Julius G. Luhrsen of the railroad labor organizations, Boris Shiskin of AFL and J. Raymond Walsh of CIO, has no justification and would be a serious blow to the whole economic stabilization program.

"Facts which we have secured from responsible sources completely disprove the claim that such extra incentives are needed to stimulate production," it was declared.

The committee denied that present ceiling prices are holding back output, asserting that the profits of most producing companies are the highest in years with the net earnings of 18 companies rising by 10 percent for the first quarter of 1943 over the corresponding period last year and citing a National City Bank report that for the first 6 months, profits of 15 companies are 20 percent ahead of 1942.

"It is startling but true that if the 35-cent increase were allowed, most straight oil-producing companies would be able to double their profits after taxes," the statement declared.

"The increase would cost consumers more than a half billion dollars in direct costs alone, authoritative estimates show. On top of that, distribution margins would have to be enlarged; transportation interests would demand higher rates to meet increased costs, and adjustments in prices would have to be made in industries using large amounts of petroleum products. That would add at least another three quarters of a billion dollars to the load placed on the ultimate consumer."

The committee denied that present prices are driving independents out of business, declaring that while many are selling out to the big companies it is because the present market for oil reserves is "exceptionally attractive."

"That hardly squares with the

gloomy picture of poverty- ridden operators being forced out of business," it commented. "They are going out only because they stand to profit hugely at this time.

"It is true that much of the clamor for the price boost is coming from small companies, but it should not be forgotten that many of the so-called 'independents' are 'kept' by the big companies and do their bidding."

The statement also attacked the contention that prices are too low to encourage exploration, citing statements from PAW that exploratory work is at an all-time peak and explaining that exploration cannot now be further extended because every available technician is already on the job. Furthermore, it said, independents have never defrayed the entire cost of wildcat drilling out of their own pockets but have been supported by the large companies.

"Some factors that may be holding back development work," it was admitted, "are shortage of steel for production of needed equipment and scarcity of manpower, but," it was added, "these problems can and should be met by methods other than price tinkering."

Wages cannot be offered as a ground for price increases, it was contended, since labor costs in the industry run only about 10 to 15 per cent of total costs, and "wages could even be doubled with little effect on prices."

"Aggregate overhead costs of the producing companies have declined rather than risen in the past few years," it was claimed. "Restrictions on volume of production, which formerly existed in many states, have to a large extent been removed or modified during the war. Thus, the operators are turning out more with the same overhead. Most of them have also greatly improved the efficiency of their operations."

Challenging the claim that a shortage of crude is imminent, the committee declared production can be raised 426,200 barrels daily, plus output from new discoveries and developments, over the May figure.

"The way to avoid a shortage in the future is not to strip our reserves dry by the inducement of higher prices, but to import more from South American countries such as Colombia and Venezuela, and thus conserve our own resources," it said.

If the relief is necessary, the statement concluded, a premium price for oil from new wells and loans to cover part of the drilling cost are preferable to a price increase.

Issuance of the Labor Policy committee statement created a furor in OPA, where disclaimers of responsibility were quickly forthcoming and the atack on Ickes was declared not to represent any official OPA view.

Indications of the perturbation which it caused were seen in the issuance the following day through OPA of a disclaimer that the committee, which it was explained acts in an advisory capacity to the administrator, was an integral part of the price organization.

"The views expressed by the Labor Policy committee on the oil price issue were solely those of the committee speaking as representatives of organized labor," it was declared.

New PAW and WPB Sections Expected to Speed Up Equipment Makers' Material

In a joint move to insure an adequate flow of materials for equipment manufacturers and well supply distributors, PAW and WPB have established new sections which will work cooperatively on problems in that field.

The plan, instigated by Frank A. Watts, director of the PAW materials division, is designed to improve and speed up the handling of applications from the 417 equipment manufacturing and 168 supply companies throughout the country which look to PAW for assistance in procuring needed materials.

WPB has set up a petroleum equipment suppliers section in its wholesale and retail trade division under Myron C. Schoenly, and PAW has established a petroleum equipment manufacturers and suppliers service section in the materials divisions under Alvin Zwerdeman, formerly vice president of Axelson Manufacturing Company, Los Angeles, who joined the organization last month.

PAW for some time has been processing the applications of the equipment manufacturers who look to PAW for control of materials for the manufacture of drilling equipment, both for domestic and foreign operations, Watts explained, but it was felt that the agency should adopt the further responsibility of insuring that, wherever possible, all the material necessary for carrying out the drilling program was made available.

"Having spent most of his life in manufacture and in contact with all the supply houses of the country, Watts said, "Zwerdeman is in a fine position to carry out that responsibility."

It was also felt that the supply houses should be tied in to the over-all program with respect to shelf items, for which PD-1-X applications are submitted to WPB, and the new section in that agency will handle such matters, functioning with PAW in making materials available.

WPB also will set up an industry advisory committee of representatives of the supply companies, which will meet at intervals to canvass the existing situation and advise with WPB officials regarding the needs of the industry. The first meeting of the committee probably will be held at about the time of the annual meeting of the American Petroleum Institute, either in Chicago during the convention or later in Washington.

The new PAW unit will keep in touch with the over-all supply situation, working with the WPB section to step up the flow of materials when necessary. There is no reason why there should not be an adequate flow and supply of material to the supply group and for the manufacturers in order that the latter can deliver direct to the industry or through the suppliers, Watts said, although a large number of shelf items are exceedingly scarce.

Among the items which are short, he cited wire line, hand tools and load and rotary chain, but there are a number of others which are causing concern. Other situations in which the two agencies will act jointly will be the isolated cases where an individual supplier has trouble getting an item which other suppliers may be able to get without difficulty.

Redistribution of Used Pipe Facilitated by Amendment

Revision of the PAW materials redistribution program will permit sale of used and new tubular goods by an operator to a supplier, even though the latter has no immediate re-sale in prospect. An amendment to P-98-c is being readied by PAW to provide this change. Under the original order, such a sale could be made only if the supplier had another operator available as a customer.

The effect of the amendment will be to permit suppliers to purchase, repair and recondition used equipment and then seek a buyer, as well as to purchase and accumulate odd-and-end lots of new and used oil country tubular goods from various operators and resell complete strings to other operators.

The order will stress that neither preference ratings nor controlled-materials allotment numbers may be used or required either in purchasing or reselling either used or new materials acquired from operators, although new controlled materials acquired by suppliers from mills or equipment distributors under preference rating order M-21-baa or the field stocks of tubular goods which are now being established may be sold on the basis of allotment numbers, and the field stocks will require special allotment numbers in addition and may not be sold until they are obtained, including the symbol "FS."

Crude Price Ceiling Regulations Simplified

A new and simplified regulation for the determination of ceiling prices by crude and natural gas producers was provided by OPA August 13, when the producer sections of Petroleum Price Schedule 88 were segregated in MPR 436.

OPA officials, however, said that the new regulations, effective August 19, would not make any changes in the price structure. Within the next few weeks two other new regulations will be similarly set up, one to cover gasoline and fuel oil and the other lubricants, greases and processed products.

In the new regulations, all sections relating to crude are brought together, obsolete sections are eliminated and the specific dollars-and-cents ceilings are set forth alphabetically with the various pools and fields clearly headed for quick reference. Minor inequities in the original regulations also are ironed out, although officials said nothing of moment is involved, and changes are made in the method of setting ceiling price for California field which had no posted prices in the base period.

WMC Moves to Hold Essential Oil Workers on Present Jobs

In the first move actually to recruit needed labor for the oil and synthetic rubber industries, the War Manpower Commission on August 14 announced adoption of a three-point program planned to hold essential workers on war-useful jobs they now hold, assure transfer of workers to jobs aiding in the war effort, and supply men for the armed forces without cutting war production.

WMC established a list of 149 critical occupations covering skills urgently needed in the war effort, and ruled that workers possessing such skills must get into war industry or supporting civilian activities by October 1 or lose further claim to occupational deferments. In order to insure the accurate channeling of workers with these critical skills to the most urgent war jobs, provision is made for their hiring only upon referal by or with the consent of the United States Employment Service.

Included in the critical list are oil well cementers, well drillers (cable or rotary), gun perforators, well acidizing treaters, refinery pumpers and stillmen; and in the synthetic rubber industry, catalytic-converter engineers, continuous-still engineers, purification engineers, and reactor engineers.

In a list of professional and scientific occupations which also are critical are: chemists, petroleum engineers, geologists and geophysicists.

Under the new program, local draft boards will give greater consideration than ever before to occupational deferment and in determining the "replaceability" of a worker, will consider the actual and immediate effect of his induction on vital production.

The new critical list does not displace the existing essential list of activities and occupations, which will continue to be eligible for deferment as heretofore.

Accompanying the critical list was an expanded list of non-deferrable occupations, including one or two luxury-producing industries but chiefly retail trade and services, with a warning that men of draft age in such activities must get into war work or be placed first on the list for induction by their local boards.

The effect of this classification will be to insure that when fathers are called for military service the first to be drafted will be those who are contributing least to the war effort.

Eastern Refineries Ordered To Operate at Capacity

Ordering East Coast refiners to run all the crude oil they possibly can secure, PAW last week instructed them to increase their output of home-heating oil and 80-octane all-purpose military gasoline to the maximum.

The order came as oil began to flow at the eastern termini of the Big-Inch pipe line and refineries, which have been partially shut down for many months, began to resume full-scale operations.

The refiners were told to take advantage of the increased crude supply to build up inventories of heating oils against the rapidly approaching winter season, even if to do so required a reduction in the volume of residual fuel oil.

By telegraph, the several refiners in District 1 were told that all limitations on crude runs were lifted and that August runs would be limited only by the capacity of their facilites.

"The over-all transportation situation, so far as petroleum is concerned, is better than it has ever been since the war began," Davies commented in announcing PAW's action. "As a result, it is now possible to bring in more crude oil, and we can now authorize the East Coast refineries to operate without quotas on crude oil runs.

"This is the cumulation of a long-range planning program that was initiated many months ago by PAW in cooperation with the petroleum industry, the railroads, the pipe-line companies, and waterway transportaion operators."

Davies, however, was reluctant to commit himself on the possibility of lifting the heating-oil rationing during the coming winter.

"While we are hopeful that current conditions are such that we will be able to build up an adequate inventory of home-heating oil on the East Coast, I cannot emphasize too strongly that we must avoid over-optimism," he said. "It is better to be cautious and certain, than to be optimistic and, later, disappointed.

"We feel confident that the East Coast will get as much fuel oil as it did last year. We are hopeful that it will get more."

East Expected to Get More Gasoline And Rest of Country Less

Eastern motorists, recently assured by Ickes and Brown that larger rations would be forthcoming in the near future, got the jitters last week when the joint statement promised for August 10 by Byrnes, Ickes and Brown was not forthcoming and it was revealed that primary suppliers in District 1 had been ordered by the supply and demand committee in New York to keep their August sales down to 75 percent of original allotments.

The joint statement, which was expected to announce the lifting of the ban on pleasure driving in the East and establishment of a coupon value of three gallons throughout the country east of the Rockies, was delayed because War Mobilization Director James F. Byrnes had not completed his survey of the gasoline situation, it was explained. Byrnes had just returned to Washington from Canada, where he accompanied President Roosevelt on a week's fishing vacation.

At OPA, however, it was said an announcement would be made August 14 of the new equalization plan, to become effective immediately. Officials of both OPA and PAW refused to discuss the new order, but it was understood that it would "equalize" rations throughout the country, increasing those in the East.

The cut is gasoline deliveries brought sales for August to about 40 percent of what they were two years ago and depressed the available civilian supply to a new low level. While the cut was hoped to be only temporary, its continuance for even a short time was seen as cutting into bus and transportation schedules just recovering from last spring's emergency.

Two reasons were advanced for the restriction, one the use of most of the increased facilities now available for Eastern movement to build up heating oil stocks simultaneously with an upping of military demand, and the other the refusal of Mid-West refiners to ship gasoline to the East in view of the wide-open markets prevailing locally.

Byrnes' survey of the gasoline situation would require another "several days", his office said, but it was indicated that the proposed new program still might be put into effect September 1 if the emergency lack of supply could be remedied by then.

In Washington it was explained that the S and D order was prompted by a combination of circumstances, including the temporary loss of supply due to a recent "act of God", failure of the District 1 refiners quickly to step up their production as new supplies arrived by the Big-Inch, and recent emphasis upon heating oil at the expense of gasoline.

PAW immediately took steps to deal with the situation, hopeful it would be cleared up in a few days.

At a press conference August 12 Ickes explained that the East is "running away behind as a result of the hurricane of the amount we would have brought into the East in August", but added that the situation was not serious and would quickly be cleared up. The situation was not bad over-all, he said, but was spotty.

Ickes disclosed that while stocks in general were substantially improved, there had been a drop of more than a half million barrels in gasoline inventories in the previous week. In percentage, this was considerable but was not a cause for alarm and would have no effect on the program for increasing Eastern rations.

He denied charges that Mid-Western refiners were refusing to ship gasoline into the East, pointing out that the Eastern market was better than that locally because of the shortage of supply.

At the moment, the administrator said, there is little chance of supple-

menting Eastern supplies by imports from South America.

"We cannot count on foreign oil for some time," he said, "because it depends on two things: tanker sinkings and demand of the armed forces abroad. The tanker situation is improving, but has not improved to that degree that would justify us on counting on tankers for our own domestic purposes in the near future.

"But the minute we can get tankers for that service we will put them back into service."

The total overland movement of oil to the East now has topped 1,500,000 barrels daily, Ickes said. Tank-car deliveries during the week ended August 7 jumped to 907,446 barrels daily from 845,964 barrels the preceding week.

Building of Concrete Barges Sharply Curtailed

Two companies whose operations were the subject of investigation by the Truman committee investigating the national defense program last winter (THE OIL WEEKLY, April 26) lost the greater part of their contracts last week when the Maritime Commission reduced its concrete-barge program from 65 to 33 units.

The contract with MacEvoy Shipbuilding Corporation of Savannah, Georgia, for the construction of 23 barges was cut to 7, while contracts with McCloskey & Company for the construction of 20 barges at the San Jacinto plant at Houston was revised to 4.

No change was made in the contract with Concrete Ship Constructors of National City, California, for the building of 22 barges, 7 of which have been delivered and 3 more launched. Construction costs of this company have been far lower than those of the other two, and it was not attacked in the scathing report issued by the Truman committee April 20, last.

The commission explained that when the original contracts were awarded during the summer of 1941, the East Coast was faced with a severe oil shortage and at that time it was impossible to divert steel and equipment for the construction of more than the scheduled number of new tankers without interfering with the emergency ship construction program. "The commission, therefore, reluctantly authorized a concrete barge program as insurance against a shortage of tanker tonnage that would seriously hamper the war effort," it said.

"Today, however, additional steel has been made available along with sufficient propulsion machinery to make the construction of tankers advisable instead of concrete barges. Furthermore, the commission's decision to convert 102 Liberty Ships into tankers has resulted in assisting the general situation.

"The question of greatly increased costs over original estimates, serious delays in construction, together with engineering and material difficulties, plant facilities, etc., were fully considered by the commission in canceling the contracts for these barges."

In its report, the Truman committee asserted the 115 concrete barges and 50 ocean-going tugs contemplated in the program would cost the government at least $250,000,000 under the contracts with the two companies which, it charged, were marked by "rapacity, greed, fraud and negligence." The contracts, it revealed, had been referred to the Department of Justice for consideration.

Navy Needs Officers For Oil-Terminal Supervisors

The United States Navy has announced a need for men who can qualify as officers in connection with a special program for oil-terminal supervisors.

Successful candidates will be commissioned and assigned duties, both within and beyond the continental limits of the United States, having to do with the handling of all types of fuel, including the loading and unloading of tankers, tank cars and barges and the supervision of storage facilities.

Applicants must have had at least five years' experience in the handling of bulk fuel oil and at least two years' experience in a water-terminal storage plant in a supervisory capacity. Inland terminal experience unless accompanied by experience at a water terminal is not acceptable. Candidates must have a knowledge of the loading and unloading of ocean-going tankers of large capacity. At least two years of college education is desirable but outstanding business progress and experience will be given consideration in lieu thereof. It is also desirable for candidates to have a knowledge of specifications for gasoline, fuel oil, lubricants and aircraft engine oil.

Age brackets are from 30 to 50 years.

Applicants must meet the Navy physical requirements and possess officer-like qualities.

All applications should be made to the nearest Office of Naval Officer Procurement.

Coal Shortage Felt in Furnace Conversion Plans

PAW has abandoned its campaign to have Eastern householders convert their oil heating plants to coal and will continue only to seek the conversion of industrial plants, as a result of the recent miners' strike which dropped coal production far behind schedule.

In consideration of the Eastern shortage, the Army has undertaken a conversion program and announced August 12 that conversions already completed or now under way would result in a saving of 30,500,000 gallons of fuel oil annually, but that oil consumption at Eastern Army posts and ordnance plants which cannot be converted will amount to twice that volume.

The Army is also undertaking conversions in other parts of the country, by which it already has cut oil consumption by 33,000,000 gallons, and the ordnance department has cut requirements in its own plants all over the country by more than 50,000,000 gallons.

It was pointed out that the Army's efforts to save oil extend to war contractors who already have cut requirements by 470,000,000 gallons through the advice and recommendations of ordnance engineers; of this figure, 265,000,000 gallons represents completed conversions and the remainder conversions now in progress.

Texas State-Wide Hearing Set for August 17

No unusual developments are anticipated at the state-wide hearing scheduled by the Texas Railroad Commission for Tuesday, August 17. However, some operators may present evidence relating to the productivity capacity of fields in which they operate, either to obtain increases or to avoid them.

After the last state-wide hearing the commission, in several cases, fixed field allowables far above the amount purchasers had indicated they were willing to buy. To forestall such action it is possible some of the operators will offer evidence to show that the fields in which they operate are producing as much as they should, or that there is no market for additional oil.

In the course of its availability survey conducted during the last three weeks, the commission found that West Texas could produce 318,000 barrels more, and that the Gulf Coast area could produce 96,000 barrels more. If PAW again requests an increase, as it has for the past few months, then the commission might very well raise allowables for these fields regardless of the nominations filed by the purchasers.

Texas Panhandle Shutdowns Lifted During August

The Texas Railroad Commission issued an order effective August 9 removing all shut-downs in the Panhandle for the remainder of August. It appeared likely this would mean that the field could produce the full allowable for 31 days. The commission estimated that the increase would amount to 23,276 barrels daily, resulting in production of 122,256 barrels daily from the Panhandle.

In its order the commission pointed out that PAW had asked refineries to increase their throughput, and that at least one Panhandle refiner had asked for more oil.

Shut downs also were removed from the Sullivan City field, Starr and Hidalgo counties. This increase amounts to 99 barrels daily and raises the field allowable to 332 barrels per day.

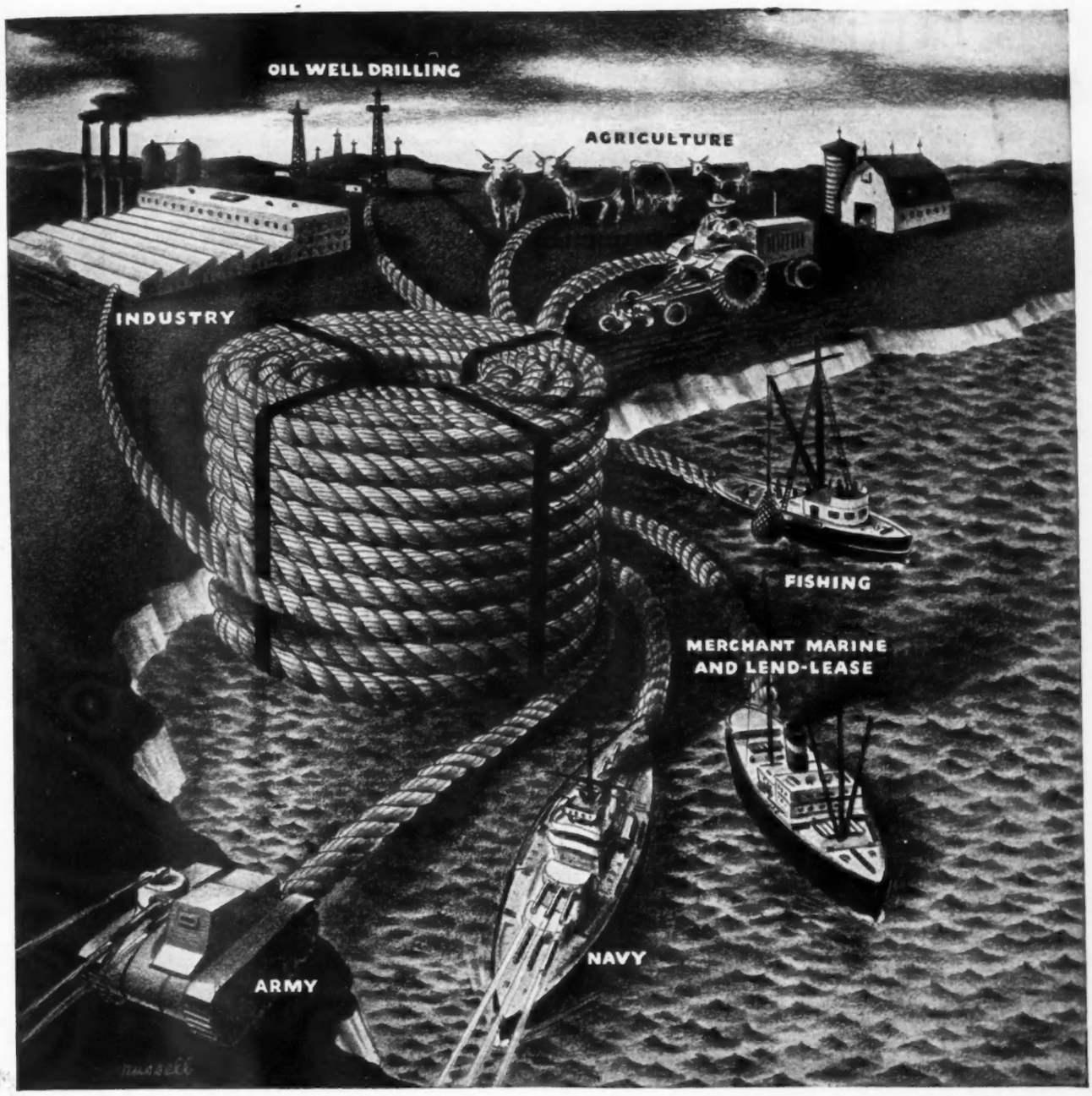
Texas Making Check Of Well Potentials

The railroad commission has begun making a check of Texas oil wells which have failed to make their allowables. A letter has been sent to all operators together with a form for a special report.

Wells which do not make their allowables are to be listed and the actual potential of each well shown.

Jack Baumel, director of production, said that the commission wanted to give to the poorer wells the allowable they could produce, but no more. The balance is to be distributed among other wells capable of higher production.

C. SCHNURR, former district geologist for Mid-Continent Petroleum Corporation, and consulting geologist in Midland, Texas, is now connected with the Petroleum Administration for War, as petroleum analyst, with headquarters in Houston.



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Texas Oil Fields Could Produce One-Third Million Barrels More Without Waste

Texas fields could produce one third million barrels of oil more than the amount set to be produced in August, and without wasteful depletion of formation pressures. The estimate that Texas production could be increased to 2,189,498 barrels daily is conservative, according to Beauford Jester, chairman of the Texas Railroad Commission, in the following exclusive statement to THE OIL WEEKLY:

"Hearings to determine the ability of Texas oil fields to produce more oil indicate that 340,767 barrels daily can be added without causing waste. The hearings extended over a period of three weeks, and took up the flush fields in each area of the state.

"The allowable for August is 1,848,731 barrels a day. If increases were granted to new fields as the evidence indicated, the total allowable could be raised to 2,189,498 barrels daily.

"This estimate is decidedly conservative. In other words, in receiving evidence at the hearings, each company operating in a field was invited to make its estimates of the amount that field could produce. In some cases, there was a wide difference of opinion as to what this could be. In other cases, it was found that a field might be able to produce a great deal of oil, but pipe-line facilities are not now available to take care of the increase. The commission took all this into consideration in arriving at the figures.

Mostly in West Texas

"Of course, the outstanding area is West Texas. The estimates there indicated that it could produce 250,552 barrels more per day. The remainder of the oil would come from fields in the Gulf Coast and East Texas. The latter oil is more readily accessible to pipeline outlets.

"I think that the commission is probably better informed than any one else concerning the amount of crude available now. We have been making a study of our own, and the report which was prepared by an industry committee headed by John Ivy under the direction of the Petroleum Administration for War has been put at our disposal. We found that figures in the Ivy report correspond almost exactly with the crude availability survey which we conducted last January.

"The commission is making every effort to supply oil for the war as recommended by the petroleum administrator. It is also doing its best to see that there is a fair distribution of this production locally, and that all the operators in Texas are given an equal opportunity to produce a fair portion of the additional production required. In this connection, I should like to point out that in many cases it has been necessary for the commission to take into consideration the location of fields in relation to the markets which must be supplied. Sometimes this has resulted in an increase for some fields out of proportion to that granted other fields producing the same grade and type of oil. This condition existed earlier this year when it was difficult to move oil out of Southwest Texas because of the lack of pipe-line facilities. In most cases, these inequalities have been remedied now because of the construction of additional pipe lines, or the movement of oil by some other means.

"It seems to me that too much has been said about the inaccessibility of some fields. In the past, when the demand for oil was sufficient, pipe lines have been built to new fields when these were discovered. I think this will be true, especially in West Texas, because there is where the largest reserve is available immediately, and does not have to wait to be discovered. It seems to me that it would be much easier to build pipe lines and convert refinery operations to take care of West Texas crude than it would be to prospect and drill enough wells to supply 250,000 barrels a day, the amount of additional oil that is available in West Texas now.

Produced Without Injury

"I would like to emphasize that the increases represented above are increases which may be had without injury to the fields which would produce the oil. While neither the railroad commission nor the oil industry would be unwilling to sacrifice an oil field if it was necessary to win the war, it is a far wiser policy to conserve these fields as long as possible, producing only that amount which can be taken without waste.

"Officials of many oil companies, as well as government departmental heads, have warned that the nation may be facing an oil shortage—a shortage of reserves. Certainly, then, it behooves the railroad commission to conserve the oil fields of Texas in order that oil will be available not only throughout the war, but when the war is over.

"As a matter of fact, some fields could produce a great deal more oil than they are producing now if waste was disregarded. This is true of the great East Texas field, Conroe, Van, Yates, Hastings, and several others which have vast reserves.

"It appears now that the railroad commission can permit the production of as much oil as transportation facilities can handle currently. However, I am aware of the fact that as the submarine menace subsides, more oil can be hauled by tanker, and Texas will be called upon to supply that oil. We are looking ahead now to that time, and are doing our best to prepare for it.

"For that reason, I feel that it is best to submit to the oil industry figures showing just how I arrived at the conclusions recited above. The figures in the accompanying table show the amount of oil from each commission district that can be produced without waste over and above that which is being produced now, and just which fields could produce this oil, and the quantities each is producing now, as well as the quantity it would produce if the total amount available was allowed."

Texas Fields that Could Produce Additional Oil

Field	August Allowable	Available Over August	Available Maximum
DISTRICT 1			
Darst Creek	6,670	3,300	9,970
DISTRICT 2			
Caesar, South	111	1,389	1,500
Coletto Creek	1,161	884	2,045
Ganado Deep	1,054	446	1,500
Greta	1,717	6,283	8,000
Greta Deep	243	357	600
Jay Welder	199	50	249
La Rosa	1,057	3,443	4,500
La Ward, North	2,143	95	2,238
Maurbro	1,116	400	1,516
McFaddin	5,106	1,294	6,400
Placedo	4,420	2,080	6,800
Placedo, East	878	332	910
Tom O'Connor	33,166	16,834	50,000
West Ranch	17,508	7,479	24,987
Total	69,879	41,366	111,245
DISTRICT 3			
Anahuac	31,267	.....	31,267
Big Creek	451	350	801
Cedar Point	2,170	226	2,396
Clam Lake	387	863	1,250
Conroe	64,890	.....	64,890
Fairbanks	8,051	.....	8,051
Fig Ridge	2,436	564	3,000
Fishers Reef	145	27	172
Hankamer	440	360	800
Hastings	60,003	.....	60,003
Manvel (Oligocene)	5,139	861	6,000
Markham, North (Cornelius Sd.)	702	2,748	3,450
Moore (Orchard)	86	64	150
North Winters	7,830	.....	7,830
Oyster Bayou	3,800	2,200	6,000
Raccoon Bend (Cockfield)	9,000	.....	9,000
Rowan	348	402	750
Seabreeze	1,109	740	1,849
Segno Deep	3,742	258	4,000
Sour Lake	1,283	180	1,463
Stowell	5,091	.....	5,091
Sugarland	11,705	.....	11,705
Tomball	12,928	726	13,654
Thompson	29,941	1,059	31,000
Thompson, South	7,540	.....	7,540
Webster	60,116	.....	60,116
Total	330,600	11,628	342,228
DISTRICT 4			
Colorado	2,299	212	2,511
Conoco Driscoll	2,926	1,074	4,000
Eagle Hill	500	250	750
Garcia	220	80	300
Glen	1,296	500	1,796
Guerra	483	167	650
Richard King	2,773	400	3,173
Rincon	6,863	637	7,500
Seeligson	3,900	8,100	12,000
Sejita	341	259	600
Stratton	4,416	5,084	9,500
Sun, North	700	340	1,040
Yturria	402	198	600
Total	27,119	17,301	44,420
DISTRICT 5			
Van	26,831	16,000	42,831
DISTRICT 6			
Quitman	1,400	600	2,000
DISTRICT 8			
Abell	2,467	1,933	4,400
Apco-Warner	793	1,207	2,000
Cedar Lake	954	1,846	2,800
Cowden, North	7,051	32,949	40,000
Cowden, South	1,655	4,045	5,700
Embar Ellenberger	1,200	3,600	4,800
Emma	965	2,598	3,563
Estes	3,942	1,058	5,000
Foster	5,778	21,242	27,020
Fuhrman	760	3,455	4,215
Johnson	1,643	2,802	4,445
Jordan	3,794	6,206	10,000
Keystone Lime	1,552	948	2,500
Mascho (West)	254	3,252	3,506
Penwell	2,367	938	3,305
Sand Hills (Ordovician)	1,675	1,625	3,300
Sand Hills (Permian)	3,839	1,361	5,200
Seminole	5,578	19,422	25,000
Slaughter	32,522	32,478	65,000
Spencer	196	130	326
Waddell	2,001	3,000	5,001
Walker	995	500	1,495
Ward, North	6,108	2,892	9,000
Wasson	3,433	72,957	76,390
Yates	21,892	28,108	50,000
Total	113,414	250,552	363,966

Refinery Runs Further Reduced; Production Of Major Products Cut and Stocks Lowered

Refinery runs of crude oil in the United States were further reduced in the week ended August 7, following a large reduction in the previous week; and in consequence, the industry has not been satisfactorily meeting the demand for the principal products.

Although stocks of residual fuel oil were far below normal, there was a withdrawal of 163,000 barrels more in the week of August 7. This reduction was caused by a curtailment in production. Output for the week was 628,000 barrels less than in the previous week. Having totalled 7,850,000 barrels, the production was only 14 percent higher than in the corresponding week last year, whereas output has been running around 20 percent or more above the 1942 trend. The reduction in residual fuel stocks was accounted for largely by California, although there was some reduction also in Oklahoma and Kansas. The East Coast and Southwest districts added 430,000 barrels. The large decline in production was caused by curtailment in all districts. The present stocks of 66,714,000 barrels are nearly 15 percent under the 78,316,000 on hand a year ago.

Although it is customary at this time of the year to be adding light fuel oils to storage, there was a reduction of 19,000 barrels in stocks in the week of August 7. This draft on storage reflected a reduction in production. The output of refineries was 88,000 barrels less than in the previous week in totalling 3,677,000 barrels. This production was 173,000 barrels, or 4.4 percent, less than that in the corresponding week last year, although demand is running higher this year than last year. The stocks of 36,344,000 barrels reported for August 7 were 3 million barrels, or 7.6 percent less than the 39,372,000 barrels held on August 8 last year.

Production of gasoline was reduced materially, having totaled 10,791,000 barrels, which was 336,000 barrels less than in the previous week. The production also was 334,000 barrels, or 3 percent, less than that in the like week last year.

Stocks of finished and unfinished gasoline totalled 73,368,000 barrels on August 7, having declined 1,609,000 barrels within the week. The new total was about 6 million barrels, or nearly 8 percent less than the 79,559,000 barrels in storage a year ago. All districts except Oklahoma-Kansas took gasoline out of the tanks, although there were increases in production in several districts, including Indiana-Illinois, Oklahoma-Kansas, and the Rocky Mountain districts.

Crude runs to stills averaged 3,776,000

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED August 14	August 7
Arkansas	76,800	77,350
California	783,500	779,850
Long Beach	32,050	31,200
Midway-Sunset	57,400	56,400
Kettleman Hills	40,200	42,150
Wilmington	93,450	93,000
Rest of State	560,400	557,100
Colorado	6,850	7,250
Illinois	211,300	228,600
Salem	27,900	28,300
Louden	38,100	37,400
Other New Pools	134,300	151,900
Old Pools	11,000	11,000
Indiana	14,800	13,950
Kansas	306,200	277,700
Kentucky	23,650	25,000
Louisiana	352,300	353,150
North	83,550	84,550
South	268,750	268,600
Michigan	55,300	57,750
Mississippi	54,000	48,600
Missouri	95	95
Montana	19,500	24,350
Nebraska	2,000	2,100
New Mexico	104,150	104,100
New York	13,750	14,950
Ohio	8,850	9,050
Oklahoma	331,450	329,900
Oklahoma City	55,900	55,200
Seminole Area	74,100	73,650
Rest of State	201,450	201,050
Pennsylvania	43,400	47,200
Tennessee	30	30
Texas	1,711,850	1,703,900
Upper Gulf Coast	474,350	474,300
East Texas Field	371,200	371,200
Rest of Eastern Texas	130,150	129,850
Lower Gulf Coast	150,400	150,300
Southwest Texas	71,900	71,950
South Central Texas	16,950	16,850
West Texas	258,300	258,650
North Texas	140,450	140,550
Panhandle	98,150	90,250
Utah	10	10
West Virginia	8,200	9,900
Wyoming	101,200	99,850
Total United States	4,229,185	4,214,635

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Week Ended	Runs to Stills Barrels Daily	Week Ended	Crude Stocks Barrels	Week Ended	Gasoline Stocks Barrels	Week Ended	Gas Oil & Distillate Stocks Barrels	Week Ended	Residual Fuel Oil Stocks Barrels	Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	[1]4,337	11-22	[1]4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	[1]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	49,861	11-14	95,857	1- 3
1943	4,203	8- 7	4,015	6-26	245,752	5-29	94,159	3-20	42,913	1- 2	72,881	1- 2
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,381	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-13	232,191	1- 9	73,368	8- 7	30,732	4- 3	66,470	7- 3

TRENDS OF 1942 AND 1943

Trends in Week Ended:	Crude Oil Production Daily	Runs to Stills Daily	Stocks Week End	Gasoline Production Weekly	Stocks Week End	Gas Oil & Distillate Production Weekly	Stocks Week End	Residual Fuel Production Weekly	Stocks Week End
1942:									
January 3	4,038	3,961	244,440	13,797	92,987	3,855	49,357	6,918	95,857
January 31	3,871	3,848	250,740	13,292	97,810	3,817	40,674	6,640	91,189
February 28	4,016	3,675	259,373	12,131	105,635	3,799	34,547	6,813	88,285
March 28	3,820	3,667	263,208	11,663	105,624	3,661	31,756	6,344	83,045
April 25	3,581	3,506	257,073	10,535	102,897	3,267	29,240	6,869	81,107
May 30	3,877	3,522	255,023	10,478	95,355	3,034	31,384	6,993	79,628
June 27	3,719	3,581	253,364	10,713	88,396	3,549	32,851	6,615	77,304
July 25	3,691	3,658	249,262	10,864	82,281	3,647	35,966	6,796	77,816
August 29	3,964	3,697	249,007	11,300	80,831	.....	42,060	.....	78,034
September 26	3,909	3,802	242,785	10,954	80,550	.....	45,945	.....	78,943
October 31	3,901	3,731	239,266	11,153	79,159	.....	48,131	.....	79,166
November 28	3,878	3,736	234,850	11,269	78,854	.....	49,739	.....	77,796
1943:									
January 2	3,871	3,734	233,938	10,957	82,420	4,285	42,913	7,683	72,881
January 30	3,826	3,698	233,863	10,339	88,830	3,888	37,057	7,452	70,763
February 27	3,873	3,709	235,217	10,566	93,157	4,230	32,939	7,839	70,140
March 27	3,896	3,742	239,126	10,231	94,079	3,541	30,980	8,018	67,938
April 24	3,913	3,737	242,035	10,583	91,001	3,954	31,142	8,168	67,455
May 29	3,970	4,679	245,752	10,656	83,937	3,798	32,274	7,672	67,682
June 26	3,955	4,015	242,657	11,092	79,589	3,876	34,044	8,126	67,960
July 31	4,133	3,788	238,420	11,127	74,977	3,765	36,363	8,478	66,877
August 7, 1943	**4,203**	**3,776**	.....	**10,791**	**73,368**	**3,677**	**36,344**	**7,850**	**66,714**
August 8, 1942	3,970	3,574	[4]248,336	11,125	79,559	3,850	39,372	6,875	78,316
Change:									
In week	+70	—12	+1,141	—336	—1,609	—88	—19	—628	—163
In year	+223	+202	—9,916	—334	—6,191	—173	—3,028	+975	—11,602
In year	+5.8%	+5.6%	—3.9%	—3.0%	—7.7%	—4.4%	—7.6%	+14.1%	—14.8%

[1] All time peak. [2] Lowest since April, 1922. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent States. [4] Stocks, August 1, 1942.

barrels per day in the August 7 week, down 12,000 from the week before. The runs were, however, 202,000 barrels, or 5.6 percent higher than in the corresponding week last year. The refineries of the country were operated at 78.3 percent of capacity. Those in the East Coast-Southwest used 72.3 percent of capacity, Appalachian District 1, 69 percent, Appalachian District 2, 98 percent, Indiana-Illinois 86 percent, Oklahoma-Kansas 77 percent, Rocky Mountain District 3, 100 percent, Rocky Mountain District 4, 59 percent, and California 92 percent.

Although refinery runs were off, crude oil production climbed to a new high for this year in averaging 4,203,000 barrels per day in the week of August 7. This was up 70,000 barrels from the week before and exceeded output in the corresponding week last year by 233,000 barrels per day, or 5.8 percent. The new rate of production was within 134,000 barrels of the all-time high, reached in early 1942.

Shortages of Oils Prevail; East Coast Supply Lower

Markets remain generally tight throughout the country, as heretofore. The East Coast district still is extremely short on most products, with gasoline and No. 2 fuel oil very scarce. Attesting the continued shortage was the fact that the American Petroleum Institute's index showed for August 7 only a 34.7 percent of normal supply of gasoline, light fuel oil, and residual fuel oil for civilian use, compared with 34.9 percent on July 31. The shortage currently is more acute for gasoline and light fuel oil than for heavy fuel oil. Bunker C oils are reported somewhat less scarce than heretofore. No changes in prices have been reported lately on the East Coast, most of the petroleum products being quoted at ceiling levels.

In Western Pennsylvania there is continued heavy demand for most refined products, with stocks low and current production limited by shortage of crude oil. Fuel oils are particularly scarce in the district, and gasoline and kerosene also are very tight. Lubricants remain in strong demand, even the neutral oils being now quite firm and less readily available than in the past. No changes in quotations have been reported lately on any products.

Shortage of gasoline remains the principal feature of the market in the Middle West. Many refiners are attempting to make purchases in the open market to supplement their own production, but in most cases, only small quantities can be purchased, and such purchases sometimes leave the sellers with completely depleted storage. Third grade gasoline is particularly scarce, in reflection of unabated heavy demand for farm purposes, and there has been much difficulty in obtaining supplies from the Southwest to afford relief.

Markets of the Mid-Continent currently are featured by heavy demand for lubricants and some letting up of the demand for gasoline, with requirements for agricultural purposes easing off. Among the lubricants, bright stocks and higher viscosity neutrals are especially in demand, and some refiners report very low stocks of those products. While inventories of practically all products in the Mid-Continent are exceptionally low, there is no prospect of building them up, in view of the fact that many refiners are substantially short of crude. No changes in quotations have been reported.

Relatively tight markets continue to prevail on the Gulf Coast. Gasoline still is extremely scarce, and demand for it is increasing. Some refiners have virtually depleted their stocks and have withdrawn quotations.

Crude Oil Production At New High for Year

United States crude oil production rose to a new high for this year in averaging 4,229,185 barrels daily. The output was 14,550 barrels a day greater than in the previous week. It was within 108,000 barrels of the all-time peak that was reached in January, 1942.

California production was up to 783,500 barrels daily from 779,850 the week before, and other increases included the following: Indiana up to 14,800 from 13,950, Kansas to 306,200 from 277,700, Mississippi to 54,000 from 48 600, New Mexico to 104,150 from 104,100, Oklahoma to 331,450 from 329,900, Texas to 1,711,850 from 1,703,900, Wyoming to 101,200 from 99,850.

Arkansas was down to 76,800 barrels per day from 77,350 the previous week, Colorado to 6850 from 7250, Illinois to 211,300 from 228,600, Kentucky to 23,650 from 25,000, Louisiana to 352,300 from 353,150, Michigan to 55,300 from 57,750, Montana to 19,500 from 24,350, New York to 13,750 from 14,950, Ohio to 8850 from 9050, Pennsylvania to 43,400 from 47,200, West Virginia to 8200 from 9900.

TROY STALLS, Stanolind Oil Purchasing Company's representative at Wichita Falls, Texas, has been transferred to Midland, Texas, where he will represent the company in the West Texas-New Mexico area. He is succeeded at Wichita Falls by James C. Mytinger.

Compact Commission Will Produce Short Oil Film

"Oil for Tomorrow," a 30-minute sound and color 16 MM motion picture, will be produced by the Interstate Oil Compact Commission.

This all-color sound movie will tell a story of the petroleum industry; portraying modern efficient methods and practices in the production and conservation of oil and gas. Featured in the picture will be animated drawings showing the origin and formation of oil underground and scientific methods of oil recovery.

C. R. Coneway, director, and Bob Baily, photographer, both of Houston, have been commissioned to make the picture. They will start their shooting schedule immediately, taking pictures of drilling, producing and refining operations in the various oil producing states.

A compact committee composed of Governor Andrew F. Schoeppel of Kansas, J. C. Hunter of Texas, and Chas. L. Orr of Oklahoma, will supervise the production of the picture. A premiere showing is planned for the next commission meeting to be held in Santa Fe, New Mexico, September 24-25.

Stanford Press Issues Geological Bulletin

Stanford University Press, Stanford University, California, announces Number 3, Volume 3, in its geological series of publications, on "Eocene Foraminifera from the Type Lodo Formation, Fresno County, California," by Lois T. Martin, research associate in paleontology. Thirty new species and two new subspecies of Eocene (including Paleocene) Foraminifera are described and figured. Associated fauna is listed, and a geologic column and a column showing the stratigraphic location of the samples are presented.

PIPE LINE REVIEW

Two Michigan Gas Lines Given Commission Approval

Michigan Public Service Commission has approved permits for two more natural gas line programs in Michigan, pending, however, the proving up of a minimum reserve in each of the fields.

Mecosta Pipe Line Company may build its proposed 6⅝-inch line from the new Goodwell field, Newaygo County, to Big Rapids, 11 miles, only after a minimum reserve of 3,000,000,000 feet has been established. Only one well has been drilled.

On the same consideration, only with a 6 billion minimum, Consumers Power Company was granted authority to build a 37-mile 10-inch line from the Woodville pool, Newaygo County, to its present terminal at Six Lakes.

Sohio Pipe Line Company's motion to dismiss an injunction restraining it from building and operating gathering lines in the new Rose Lake field or any other Michigan fields served by Simrall Corporation, plaintiff, in a breach of contract suit, has been denied.

Simrall, which is jointly owned by Standard Oil Company of Ohio and Roosevelt Oil Company of Mt. Pleasant, the plaintiff charges, has the exclusive crude purchasing right in Central Michigan under terms of a contract negotiated in 1935. Roosevelt also charges in its suit that Standard and its 100-percent-owned subsidiary, Sohio, seeks to circumvent contracts dividing the crude between Standard and Roosevelt that is purchased by the jointly-owned pipe line.

With the injunction to stand, hearing on the suit is scheduled for the September term of court.

Magnolia Enlarging Mitchell Station in Illinois

Magnolia Pipe Line Company is adding two centrifugal pumping units to its Mitchell station, near Wood River, Illinois, to boost the capacity from 50,000 to 60,000 barrels daily. This station is the receiving point for Mid-Continent crudes entering the company's 367-mile 10-inch that terminates at Lima, Ohio, and also delivers to Socony-Vacuum Oil Company's East St. Louis refinery, which has increased its capacity. Two 80,000-barrel tanks are being moved from Maude district, Oklahoma, to Mitchell station.

International Developments

Commercial Gas Field in Athabasca Area

Discovery of a new gas field in Alberta, Canada, has resulted from the drilling of the Deca No. 2 well in the Athabasca area by East Crest Oil Company and Davies Petroleums, in the opinion of Dr. J. O. G. Sanderson, geologist.

This well, originally estimated to have a gas flow of 15,000,000 cubic feet daily, has been subjected to a Government test and is now reported by President H. S. Price of East Crest Oil Company to have a flow of 22,00,000 cubic feet daily.

Dr. Sanderson spent four days at the well and after witnessing a full hour's open flow said that it was definitely a large commercial gas well. He reported that part of the core, from 1654 to 1663 feet, showed oil saturation.

By setting the casing in the well to 1674 feet, the top of the Grand Rapids sandstone, this oil horizon was cased off so that the potentialities of this sand is not known, but it can be produced at any time by gun perforating the casing at that horizon.

In the opinion of Dr. Sanderson, it would be foolish to disturb such a valuable gas producer to test this oil horizon at the present time. However, he has selected sites for two new wells, Deca No. 1 to be six miles east of the No. 2 and Deca No. 3 to be 2¾ miles southwest of the discovery well, indicating his confidence in a large field, according to Mr. Price.

Distance from the Deca gas well to Edmonton is 80 miles and the cost of a pipeline to feed that city with the gas is estimated by Mr. Price at $3,500,000, but he expresses doubt of priorities for such a line being granted at this time. Edmonton currently gets its gas supply from the Kinsella and Viking fields, 125 miles away.

No Change in Canadian Gasoline Supply Situation

"No change in our gasoline ration is contemplated at the moment," C. D. Howe, Canadian minister of munitions and supply, stated following new motor fuel restrictions in the United States.

"The Canadian ration is based on our own supply and any change would be made in the light of the Canadian situation," Howe stated.

Will Complete Old Deep Test South of Calgary

Completion of the 15-year-old Ranchmen's well, 25 miles south of Calgary, Alberta, will be undertaken by New Ranchmen's Oil Company, satisfactory financial arrangements having been made, it was announced by Maynard J. Davies of Calgary, president of the company.

The well was started in 1928 and has been standing for a considerable period in Dalhousie sands at 7240 feet. The well struck many showings of oil and gas. Preliminary work has been commenced.

New Ranchmen's-Snider 1 well, now standing at 1700 feet, will also be completed. Rotary equipment will be used and machinery is expected to be at the location in a few days.

Davies said that financial arrangements would insure completion of operations in this area, between Okotoks and High River, which had attracted attention for many years.

Officials of New Ranchmen's Oil Company are: M. J. Davies, president; B. O. Jones, secretary; R. C. Carlile, treasurer; and E. C. Shaughnessy, director.

Royal Dutch Restores North African Contacts

Following the Allied landing in North Africa, the Royal Dutch-Shell Group's headquarters in Willemstad, Curacao, Netherlands West Indies, were able to restore normal relations with the Group companies in those territories, it was stated in the lately issued annual report of the Royal-Dutch for 1942. This re-establishment of contact with companies cut off by the war is the first to occur for the concern.

Royal Dutch Reports Same Earnings in 1942 as 1941

The Royal Dutch Company's financial result for 1942 was the same as that for 1941, according to the lately issued annual report of the concern, which stated that it received about fl. 23,000,000 in dividends from its subsidiaries.

In pursuance of the same policy as for 1940 and 1941, the company set aside the total of its net income for 1942, which has been added to the special reserve against future contingencies. The profit and loss account has been debited accordingly. The special reserve now stands at a total amount of nearly fl. 72,000,000.

The conservative policy that the company has followed with regard to creation of reserves is well justified by present circumstances, the report pointed out, as very considerable sums of money will be needed to reconstruct all that has been lost through the war, including the very heavy losses in the Far East, where properties were largely destroyed.

Canada to Finance Ten Turner Valley Wells

Drilling of 10 wells in Turner Valley at a cost of approximately $2,000,000 to be financed by the Dominion government through Wartime Oils, Ltd., (government) was announced recently.

Officials of the Petroleum and Natural Gas Conservation Board of Alberta said drilling permits were granted for the wells in the west flank of Turner Valley.

A. A. Carpenter, president of Wartime Oils Ltd., said the wells would be financed with government money when necessary contracts had been completed.

Announcement of the drilling program came at a time when drilling operations in Turner Valley were at the lowest ebb in years.

Alberta's oil production is averaging 26,496 barrels daily, a decline of approximately 1300 barrels daily from the yield a year ago.

Production Increasing In Northwest Canada

Production of petroleum in Canada for the first five months of 1943 as released by the Dominion Bureau of Statistics at Ottawa, was 4,211,751 barrels, as compared to 4,383,292 barrels in the first five months of 1942.

Alberta production accounted for 4,074,469 barrels this year compared to 4,313,292 barrels in the same period last year. New Brunswick production was up this year to 11,335 barrels compared to 9165 barrels last year, while Ontario production was down from 60,689 barrels in 1942 to 53,420 barrels in the first five months of 1943.

Greatest increase is shown in production in the Northwest Territories where last year from January to May 146 barrels were produced and this year under stress of wartime conditions and new drillings under both United States and Canadian government stimulus has amounted to 72,527 barrels in the same period. Production of petroleum by months in the Northwest Territories this year amount to 9107 in January, 11,556 in February, 17,374 in March, 19,692 in April and 14,798 in May.

Crude Oil Production Up 9 Percent in Peru

Oil production in Peru amounted to 3,627,127 barrels for the first quarter of this year, an increase of about 9 percent over the 3,327,318 barrels reported for the corresponding period of last year.

Refinery output totaled 3,582,779 barrels for the first quarter of this year.

Production of natural gasoline was up about 1 percent, in totaling 275,644 barrels in the first 3 months of 1943, against 272,733 barrels in the like period of 1942.

Oil Storage Tanks Will Be Built in Colombia

Construction of large oil storage capacity at Buenaventura, Colombia, is planned, according to foreign press reports. The tanks are intended to supply national and other merchant ships.

A state-owned tanker has been put back into service to carry oil to Buenaventura from Atlantic ports.

Canadian Production Down In First 5 Months of 1943

The Dominion Bureau of Statistics says Canadian output of crude petroleum and natural gasoline in May totaled 872,812 barrels, compared with 837,072 in April and 892,034 in May last year.

Alberta's output was 843,431 barrels, of which the Turner Valley field accounted for 832,219 barrels.

Total Canadian output during the five months ended May 31, was 4,211,751 barrels, compared with 4,383,292 in the same period of 1942.

Natural gas production during May amounted to 3,115,270,000 cubic feet compared with 3,659,984,000 in April and 3,076,658,000 in May, 1942. During the five months of this year, output totaled 21,760,864,000 cubic feet compared with 21,083,130,000 in the same period of 1942.

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U. S. Field Operations

Illinois Basin

Two New Fields Opened; Maple Grove Extended

A new field has been opened with the completion of a wildcat six miles from other production, Big Chief Drilling Company's Heap 1, SE SE SW 28-6n-9e, Jasper County. The well swabbed 118 barrels of oil in 18 hours following a 1000-gallon acid treatment in McClosky lime at 3108-13 feet. It is the first pool-opening well in the county this year. It was reported that several offset tests are planned.

Edwards County: Mabee Oil & Gas Company's Cowling 1, SW NE SW 20-2s-14w, was completed as the discovery well of the East Albion pool, pumping 180 barrels of oil in 24 hours from Aux Vases sand at 3002-38 feet. The well has been testing for several weeks.

Although it has been on production for several days, Ryan and Fortner's Ralston 1, E½ SW SE 9-1n-10e, has just been listed officially as a completion. It is a mile south extension of the new Maple Grove field. Casing was twice perforated, once with 18 shots and again with 22 shots, in McClosky. In its best 24-hour test the well flowed 758 barrels of oil.

Illinois Producing Company's Gillespie 1, E½ NE SE 9-1n-10e, northeast offset to Ryan and Fortner's extension well, was showing for a producer in McClosky saturation at 3276-3310 feet.

Clay County: Two interesting wildcats were well underway. E. A. Obering's McGee 1, NE NE SW 30-5n-5e, 3 miles south of Bible Grove and 1½ miles southwest of the Bible Grove field, was drilling below 500 feet.

A. S. Williams' McGee 1, NW NW SE 22-5n-5e, 1 mile south of the Iola field, was shut down for motor repairs at 2100 feet after topping Glen Dean at 1970.

In the Iola field The Texas Company's Byers 3, east outpost to the area's central sand producing sector, SE SE NW 14-5n-5e, was waiting on cement with casing set at 2326 feet, after saturation was recovering in the Aux Vases sand.

Kentucky

Carter Oil Company's A. Greenwell 1, SW NE NE 4-O-21, Union County, 3 miles north of Waverly and ¼-mile south of same operator's Russelburg 2, flowed clean oil in 20 minutes on drill-stem test of Upper McClosky at 2581-98 feet. It was drilling deeper for lower McClosky break.

Kingwood Oil Company's A. F. Lilly 1, NW NW NW 21-O-19, wildcat ¼-mile southwest of Morganfield, was drilling at 2296 feet.
southwest of Morganfield, was drilling at 2296 feet.

H. H. Weinert's L. Clements 1, SW NE NE NE 12-O-20, Pure Oil Company farm-out, completed in McClosky at 2576-88 for initial production of 330 barrels on pump, after 6000 gallons of acid.

Sun Oil Company's J. W. Hite 1, NW NE NE 4-O-21, shut down for orders at 2601 feet, after 80-minute drill-stem test of McClosky at 2598-2600 feet showed no oil.

Sinclair Prairie Oil Company's Noah Hunter, NE NW NE 3-O-18, wildcat 4 miles west of Uniontown, was dry at 2865 feet. Starting at surface elevation of 349 feet, Glen Dean was topped at 2090 feet.

Henderson County: W. E. Hupp and Sohio Producing Company's Ohio Valley Trust Company 1, SE SE SE 23-R-25, wildcat 7½ miles northeast of Henderson, was dry at 2242 feet.

Sherry-Kidd's Virginia Starkey 1, NE SE NW 1-Q-23, is moving in rotary for a wildcat 3 miles north of Henderson. Delta Drilling Company is contractor.

Indiana

Lewis Production Company and C. V. Richardson's B. Sussick 1, NW NE SW 27-7s-14w, Posey County, 2 miles southwest of Hovey and a mile from nearest production to the northeast, was drilling at 1540 feet.

Oklahoma

Extension of West Cement Field Indicated

The most interesting test in Oklahoma at present is Gulf Oil Corporation's No. 1 Sherritt, SE NW NE 33-6n-10w, which promises to extend the Medrano sand production of the West Cement field of Caddo County. The Medrano was topped at 5770 feet, about 70 feet higher than the nearest oil producer, and the company was still recovering saturation at 5922 feet. The well should open a large area to development and extend the general boundaries of the prolific field. The nearest producer is Palmer Oil Company's No. 4 Sterba, which yielded 568 barrels in its initial 11-hour test along with 25,000,000 feet of gas.

Logan County: Eason Oil Company's wildcat, No. 1 School Land, NE SW SW 16-15n-2w, southeast of Steward in Logan County, is making about 4,500,000 feet of gas and about 100 barrels of distillate daily from sandy dolomite which was tested through perforations at 5990-6005 feet.

Danciger Oil & Refining Company is preparing to test Wilcox sand at No. 1 McPeek, C NE SE 18-18n-3w, east of the Lovell pool in Logan County. The well was drilled to 6424 feet in the second Wilcox and plugged back for test of the first Wilcox in which pay was encountered at 6320-6346 feet.

Noble County: Thomas N. Berry and associates are still waiting to drill plug at No. 1 Wood, NE SE NW 1-20n-1w, a discovery well three miles east of the Perry gas field. After an electric log test, the pay zone was corrected to read 3494-3508 feet with total depth 3517 feet. Old fashioned cement was used causing the delay in drilling plug.

McClain County: Carter Oil Company has set 9⅝-inch pipe at its wildcat No. 1 Cottingham, C SE SW 21-3n-10w, near Washington in McClain County. An electric log test was run prior to setting pipe. The well is scheduled for 10,000 to 12,000 feet.

Kansas

Developments Net Only Small Gas Well for Week

A small gas well discovery on the extreme eastern side of the state was the brightest spot in dull Kansas reports during the week. The discovery was D. W. Bureuer et al's Dunlap 1, C NW NW 7-11s-23e, in Wyandotte County. The well was completed for 175,000 feet of gas daily in lime pay at 519-25 feet.

Reno County: Phillips Petroleum Company continues to test its Manning 1, SW SW NW 34-25s-4w, a discovery well nearly two miles north of the Hilger pool in Reno County. Yielding oil from the Viola lime, the well swabbed approximately 50 barrels per hour without lowering the oil in the hole to any great extent. The oil is 41 gravity and was found at 4099-4102½ feet.

McPherson County: Dickey Oil Company has found prospective pay in Viola lime at No. 1 Lilliestrand, C WL SE SW 24-17s-4w, and has staked location for another well in the same section, in a move which apparently will enlarge the scope of development on the west side of the Lindsborg pool.

Phillips County: Harbar Drilling Company encountered a good show of oil in Lansing lime in No. 1 Wheaton, a rank wildcat well in SW SW SE 9-5s-17w, Phillips County. Tests are under way through perforations at 3227-29 feet. Total depth of hole is 3560 feet in Arbuckle lime.

Norton County: Phillips Petroleum Company's No. 1 Irma, a Norton County wildcat in NE NE SE 30-5s-21w, got 1800 feet of water in the hole when plug was drilled for a test of Reagan sand at 3738 feet. The company is drilling ahead below 3855 feet.

Rocky Mountain Area

Wildcat on Gage Structure Has Good Show

Northern Ordnance wildcat, Cage structure, Montana, which reported good showing of oil a week ago, is drilling deeper into lime. Superior Oil's test north of Lance Creek fault is running casing.

Cage Wildcat: Northern Ordnance Corporation's Morris 1, CSW SW 15-9n-5w, Gage Dome, Musselshell County, Montana, is coring at 6156 feet in the Amsden lime (Big Snowey?) feeling for additional saturation. This wildcat showed 720 feet of 33 degree gravity oil and 120 feet of oil and cut drilling mud on drill stem test with packer set at 5971 feet and hole bottomed at 6060 feet in the Amsden (?) lime topped at 5980 feet. The test indicated a production rate of 13 barrels per hour. Cage structure is lower closure dome on the southeast end of the South Willow Creek uplift. Gage has an indicate clo-

sure of around 150 feet embracing approximately 4000 acres. The structure is 15 miles southeast of the nearly depleted Devils Basin field, and is 12 miles north and east of Roundup where the L. R. Carrol topping plant with 50 barrels capacity has been shut down for the past several months.

Lance Creek Test: Superior Oil Company's Ong 1, CSE SW 31-36n-65w, drilling for a possible fault trap accumulation of oil on the northwest side of the Lance Creek field, Wyoming, is running 6⅝-inch casing to 8783 feet. The test cored saturation in the Dakota sand at 8762-70 feet. Caving hole has delayed operations, and the test will probably be drilled deeper and later plugged back and perforated opposite the Dakota if nothing worthwhile is encountered in lower sands.

West Texas

Midland Series Producing In Andrews County Wildcat

The Midland series of Clear Fork oil zones comparable with the Wasson field deep pays have been uncovered by Union Oil Company of California's Biles 1, Northwestern Andrews County wildcat that yielded 3815 feet of 41-gravity oil on a drill-stem test at 7310-7457 feet. A previous test at 7029-7310 feet had assured the completion of a well. Pipe was cemented at 7456 feet, or 1 foot off bottom, to complete through perforations. Biles 1 is 4½ miles northwest of the Fullerton field, and on a direct strike with the Russell deep pool in Gaines County. In the event of a prolific completion, a sizable drilling campaign will follow as a pipe line connection has been assured since this oil is free of sulphur and yields products of military value.

Union Oil Company of California let a contract for the drilling of Cowden 1, C NE NW PSL 18, Block A-55, to test the Ellenburger, or go to 11,000 feet. It is in the southwest corner of Andrews County, and 1½ miles southeast of a failure at 8012 feet that entered the Mississippian at 7810 feet.

Upton County: Texas Pacific Coal & Oil Company's Lane 52-A, the first Ordovician project for the McCamey field, is encountering intermediate zones between the Permian and the Ordovician, having entered the Devonian at 6450 feet, and is drilling lime and chert below 6758 feet.

Gaines County: Stanolind Oil & Gas Company's American Warehouse 15, Cedar Lake field, is drilling lime and chert below 11,020 feet with plans to go to 12,000 feet, if necessary to reach the Ordovician. Amerada Petroleum Corporation's Robertson 6, east edge Seminole field, is drilling dry lime below 9096 feet without shows.

Reagan County: Amerada Petroleum Corporation's Johnson 1, a mile north by west of the Barnhart field discovery, established the water table at 9245 feet, with elevation of 2767 feet, and drill-stem test at 9207-55 feet, total depth, recovered 1900 feet of oil, 600 feet of oil- and gas-cut mud and 1600 feet of clear salt water. The pay section in the Ellenburger is in excess of 200 feet.

Pecos County: Phillips Petroleum Company's Price 1, wildcat, is drilling shale and dolomite at 12,295 feet, carrying open hole below 6901 feet.

Lubbock County: John R. Sharp and associates contracted to drill Brown-Stanolind 1, C SW NW BS&F Ry. 113, Block C, 17 miles northeast of Lubbock and south of the deep seated granite ridge that extends east-west across the Permian Basin. It is near the center of 5000-acre block assembled by Stanolind Oil & Gas Company, which contributed 400 acres and cash.

Reeves County: Standard Oil Company of Texas' Keasler 1, 5 miles northeast of Toyah and scheduled to drill to the Bone Spring, or Basal Permian, entered the Delaware lime at 3877 feet with elevation of 2837 feet, and is drilling at 3890 feet. Company's T. P. Land Trust 1, 5 miles southwest of Orla and in Northeastern Reeves County, is drilling at 1010 feet. This prospecting is within the vicinity of the company's affiliated pipe line that supplies its refinery at El Paso.

North Texas

Wilbarger County Adds Pool from Ellenburger

Southeastern Wilbarger County scored an Ellenburger discovery when W. T. Waggoner Estate's Fee 1-MM, C NE NE H&TC 8, Block 17, 3 miles west of Consolidated multi-pay field and separted by failures, flowed 99 barrels on a 3-hour test through ⅜-inch, acidized with 2000 gallons through perforations at 4429-90 feet. It entered Ellenburger at 4460 feet, being 127 feet high to a failure 2/3-mile northwest. This discovery involves local high on a production trend extending west by north from K-M-A field.

Wichita County: Consolidated Oil Company's Davidson 1, 495 feet snl and 1815 feet wel of west 640 acres of J. R. McDowell Survey, apparently qualifies as a pool opener in flowing 102 barrels of oil on a 2-hour test through ¾-inch choke from dolomite saturation at 5353-64 feet in Ellenburger, topped at 5353 feet. This strike is 1⅛ miles south of the company's Laukhuf 1, which recently established the Airport pool with flow from Strawn lime at 4415-65 feet, and is the same distance east of Asylum pool, which has a pumper in Bend-Ellenburger contact and 2 small wells in 4700-foot Basal Strawn. A failure between Davidson 1 and the Asylum pool entered Bend at 5177 feet, 43 feet high, and was abandoned at 5225 feet above Ellenburger. Later development of intermediate acreage probably will show that the 3 areas involve a single structure, with erratic Strawn pays. Davidson 1 logged top of Ellenburger 15 feet high to the Asylum pool discovery, and 41 feet high to the Airport discovery, thus revealing flatness of structure. Considerable drilling will follow, and 2 tests have been authorized for the West pool, recently opened immediately northwest of Wichita Falls.

Cooke County: Sinclair Prairie Oil Company completed 3 prolific Basal Strawn (Winger) sand wells in the east extension of Walnut Bend field, making 16 consecutive wells since the new area was opened last January. These new completions averaged 72 feet of oil sand.

Montague County: Sinclair Prairie Oil Company's Middleton 1, east extension for the Hildreth two-pay area, is rated at 3802 barrels potential, based upon 3-hour open-tubing test, from Bend perforations at 6050-94 feet. It failed to produce in Simpson, and was carried to Ellenburger at 7225-7395 feet. Continental Oil Company's Scheller 1, southwest extension and fourth completion for Mueller pool, flowed 428 barrels of oil on 7-hour test through 30/64-inch choke from Bend perforations at 6054-50 feet. It was carried to Simpson, which proved dry.

Young County: Deep Rock Oil Corporation's Morrison 1, recent Mississippi strike and 2 miles northeast of Bunger, flowed 134 barrels of 43-gravity oil on 12-hour test through ¼-inch from saturation at 4439-57 feet. Tubing pressure ranged from 800 to 300 pounds and tubing from 1260 to 1125 pounds. Revival of development in the Padgitt pool is due to follow completion of R. C. Lipscomb's Scott-Shell 1, northeast offset to the discovery, where production test is pending in broken saturation at 4670-4762 feet in Mississippian, topped at 4666 feet, 76 feet high.

East Texas

Henderson County Field Gets Major Extension

Stanolind Oil & Gas Company's Tri-Cities-Leopard Unit 1-C. J. M. Y'Barbo Survey, assured a major east extension for the Tri-Cities 3-well gas-distillate field, Henderson County, in logging production in the first Rodessa pay at 7564-78 feet with elevation of 398 feet. Drilling was underway at 7630 feet to explore the Travis Peak, which has also indicated production possibilities. The Rodessa porous zone is 30 feet high to the company's recently completed Tri-Cities 1-D. Development to date has indicated that the field will embrace a large producing area, while a pipe line outlet is available for the gas, thus making it possible to produce the 67-gravity distillate.

Wildcats: Grelling et al's Blalock 1, Hopkins County, is drilling at 5510 feet in Georgetown lime, topped at 5240 feet with elevation of 520 feet. In Van Zandt county, Roger Lacy et al's Paul 1, on the southeast edge of Fruitvale, is drilling at 5880 feet near base of the Georgetown. Both have the Paluxy as an objective.

Smackover Projects: Humble Oil & Refining Company's Graham 1, Hunt County wildcat that was apparently junked at 9409 feet in Smackover, topped at 9011 feet, cleaned up and deepened to 9523 feet, where it was abandoned in Eagle Mills salt, entered at 9512 feet. The 414-foot Buckner zone topped at 8598 feet, carried a 70-foot section of salt, an unusual occurrence. The company is proceeding with the drilling of its second Smackover lime test in the county. Sun Oil Company's Rutledge 1, Kaufman County, was coring at 9685 feet for Buckner-Smackover contact, and probably will have more than 600 feet of Buckner.

Wood County: Jackson-Fisher & Fields' Quitman National Bank 1, second test for Oak Grove prospect, abandoned in Woodbine water sand at 5700-6016 feet. This partnership's McCarley 1, failure in Paluxy, recovered a portion of the junk lost in trying to complete in Woodbine oil saturation, and will attempt to sidetrack at 3200 feet.

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leum Corporation's Rogers 1, third producer, is pumping 88½ barrels of 32-gravity oil in 14 hours. Production is from Paluxy perforations at 6300-42 feet. Shell Oil Company's Sheppard 1, southeast extension that recently showed for oil producer from 17 feet of sand then entered water table at 6394 feet with elevation of 453 feet, halted at 6662 feet to run pipe and complete. It was originally slated to drill to Travis Peak, but low structural position caused cancellation.

Franklin County: Humble Oil & Refining Company's Hague 1, mile southwest of Winfield, entered Georgetown at 4455 feet with elevation of 343 feet, and is landing protection pipe at 4436 feet.

Southwest Texas

Willimar Field Extended and Several Wildcats Drilling

Willacy County is rapidly entering the list of active exploration areas with a major extension being given to the Willamar field and with several wildcats being drilled. As a result of Baldridge & King's two-mile southward extension, considerable geophysical work is being conducted in the area with the result that some blocks are being assembled. The county only has two fields so far, the other pool being La Sal Vieja in the west portion. Operators are leasing on a north-south trend, and more wildcats are expected to be announced for the vicinity this summer.

Baldridge & King's Cavazos 1 was perforated in the Kent sand logged at 7931-59 feet and flowed 15 barrels per hour through 3/16-inch choke with 350 pounds tubing pressure and 900 pounds on casing.

New Pays: Southern Minerals Corporation has opened a new pay sand in Woodsboro field of Refugio County. The company's Wood 5, Anastacio Reojas grant, was perforated at 5521-26 feet and flowed 151 barrels of 35.4-gravity oil through ⅛-inch choke. Total depth is 5905 feet with 5½-inch pipe set to 5565 feet. The regular producing pays are found in the 5400-foot and 5800-foot sections.

Humble Oil & Refining Company has completed a well to open a new pay at Stratton in Nueces County. The company's King Ranch-Paso Ancho 26 on south side of the field, flowed 208 barrels of 40.1-gravity oil per day through ⅛-inch choke with 2050 pounds pressure on tubing, casing sealed. The new sand was topped at 6990 feet, the hole being bottomed at 7163 feet with 5½-inch casing set to 7153 feet.

Zapata County: The Texas Company is making a flow test on Hartman 2, wildcat three miles southwest of Colorado field near Jim Hogg County line. With the hole bottomed at 2310 feet, several drill-stem tests were made showing oil and gas and some salt water.

Starr County: The Lockhart field is looming as a multiple sand reserve with Sun Oil Company's McLean 3 on the southwest flank recovering 970 feet of oil and 150 feet of oil-cut mud on a one-hour drill-stem test at 3755-68 feet. The well has been drilling and coring below 3800 feet in attempt to pick up another sand section. This sand apparently is blanketed around the edges of the field, however, it showed gas on top of the structure. Already the company has staked McLean 4, 990 feet northwest of McLean 3.

Bee County: Union Producing Company is preparing to make a flow test in Porter 1-W, wildcat 6000 feet northeast of North Pettus-Wilcox production. With the hole bottomed at 7357 feet, gas sands were encountered at 7000-22 feet and 7108-25 feet while a sand at 7108-25 feet showed distillate. This well, located in Brooks and Burleson Survey 23, adds considerable more acreage to further development.

Texas Gulf Coast

Kirby Field in Liberty County Being Extended

The Kirby field on southwest flank of Esperson dome of Liberty County is rapidly expanding with new extension wells being completed as commercial producers. The latest extension was General Crude Oil Company's Welch 5-B, completed for 565 barrels of 36.6 gravity oil daily through ¼-inch choke. This new producer is 3000 feet north of Welch 3-B discovery and is in M. Duncal survey. Total depth is 8427 feet with 5½-inch casing set to 7715 feet. Sand was topped at 7610 feet with perforations made at 7610-40 feet.

Jefferson County: The first large gas well in the Stowell field has been completed with Glenn H. McCarthy finishing Hinkle 1 east of production. With the hole bottomed at 9660 feet and with 5½-inch casing set to 8612 feet, perfor-

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ations were made at 8535-55 feet and 8559-63 feet with the open flow mounting to 170,000,000 cubic feet of gas per day and a spray of four barrels of distillate. Location is in F. B. Stratford survey 156.

Wildcats: Cities Service has announced it will drill Sharman 1, wildcat southwest of Bammell field, Harris County. Projected to 8000 feet, the well is on a 320-acre lease in W. H. Mowery survey, A-1419. Considerable interest has been shown in this area as likely producing acreage.

W. W. West is spudding Fee 1, projected 10,000-foot Wilcox wildcat on south flank of Davis Hill dome, Liberty County. This dome, a piercement type, is one of the few remaining salt dome prospects in the coastal area that has not produced oil. The acreage situation on the flanks, owned mainly by major operators, has prevented the drilling of any deep tests until now.

Montgomery County: Humble Oil and Refining Company is resuming drilling in Texas Long Leaf 1, projected deep Wilcox wildcat in the Splendora area. With the hole bottomed at 9028 feet, drilling has been shut down several days to seal off a bad place in surface casing. The well is projected to 12,000 feet or deeper.

Colorado County: Magnolia Petroleum Company is preparing to resume testing in Anderson 1, wildcat two miles southwest of Chesterville that is opening a gas-distillate field. First test will be made in the Wilcox section, and more tests will be made later in two Cockfield gas-distillate sections. Total depth is 12,006 feet with 5½-inch casing set to 9660 feet.

South Louisiana

Wildcat Activity Showing Upwards Swing

Drilling activity, especially the wildcatting phase, is due to increase in the coastal belt with one deep wildcat making flow tests, while other wells are preparing to drill.

Danciger Oil & Refining Company is making first a flow test on Haas 1, wildcat in the Reddell area of Evangeline Parish that is opening a new field. Operators drilled the well to 12,206 feet and set 5½-inch casing near bottom. Testing was started at the bottom and will proceed up the hole where a number of sands will be perforated. First shots were made in the Wilcox at 12,113-125 feet. With the Wilcox topped at 10,494 feet, sands showing distillate were found in this deep formation at 10,794 feet, 10,822 feet, and 11,131 feet showing gas-distillate, 11,130 feet showing oil, 11,191 feet showing oil, 11,380 feet showing oil, 12,020 feet showing gas-distillate, 12,041 feet showing oil, and 12,113 feet showing oil.

The Cockfield sand, which produces prolifically at Pine Prairie, carried water while the Sparta sections showed gas-distillate at 9720 feet and gas-distillate and oil at 9880 feet. Considerable interest has been shown in this test which is located in Section 22-4s-1w. It has been drilled previously, some of the wells finding shows of oil and gas but not in commercial quantities..

Meanwhile, Continental Oil Company and Humble Oil & Refining Company have announced location for a 12,000-foot test one mile west of Danciger's discovery. It is Pardee Lumber 3 and is spotted in the northeast corner of Section 20-4s-1w, on 40-acre unit. The latter two companies are large acreage holders in the area.

Beauregard Parish: The Bear field is now one of the most active fields on the coast with General Crude Oil Company announcing it will drill a Frio sand test. The location is Cooley-McDonald 1 and is spotted in Section 27-6s-9w. This operation makes four active tests in the area. So far three producers have been drilled, the field having been discovered in April, 1943.

Wildcats: Deep drilling is likely to increase while the number of wells may show a decline. Danciger Oil & Refining Company has announced it will drill a deep Wilcox test on Beaver prospect in Evangeline Parish. The prospect, regarded by many geologists as the best Wilcox area on the coast, is 7 miles northwest of the Pine Prairie field and 12 miles northwest of the Reddell area. Location is at center of southeast quarter of Section 4-3s-2w. Danciger, The Texas Company and Skelly Oil Company owning most of the acreage.

The Texas Company has announced it will drill a 11,000-foot wildcat in Vermillion Bay of Iberia Parish. It is State-Bay 1-C and is in T-14s-6e. Continental Oil Company has announced it will drill Acadia Parish School Board 2, second north flank test at Richie in Acadia Parish. Contracted to 8600 feet, the well is located in Section 16-7s-1w on 40-acre unit. It is north of School Board 1 which recently opened new and deeper production.

North Louisiana

Producer in Homer Field Indicates Large Reserves

Indications point to a new major reserve in the old Homer field, Claiborne Parish, where Frankel et al's Muslow 1 was completed this week for 83 barrels, through 3/16-inch top and ½-inch bottom chokes in 24 hours run. Perforations were at 4315-20 feet and gas-oil ratio was 2602/1. Packer was set at 4307 feet and the flow test made from sand at 4282-92 feet. The oil is 46.9-gravity. Tubing pressure was 450 pounds, and 850 pounds on casing.

The well had previously been drilled to the sale plug at 5985 feet and was plugged back to 4368 feet. Two additional sands were to be tested before final completion.

Carter Oil Company's Tuscaloosa discovery in Tensas Parish, Shelley 1, SW NE 19-11n-10e, averaged 15.6 barrels of 35.5-gravity oil per hour through 5/32-inch choke from perforations at 8399-8410 feet. Tubing pressure was 1500 pounds, and casing pressure 1600. Elevation was at 79 feet, and total depth was 8444 feet. The nearest production to this deep strike is at Lake St. John, 13 miles south.

Along a recent fault line play at southeast Sugar Creek, C. H. Lyon's Hassell 1, S NE NW NW 17-19n-5w, flowed 185 barrels of 37.8-gravity oil in 24 hours from the Travis Peak, through a ¼-inch choke, with perforations at 5848-54 and 5860-70 feet. The test was closed in pending storage tanks. Tubing pressure was 1500 pounds.

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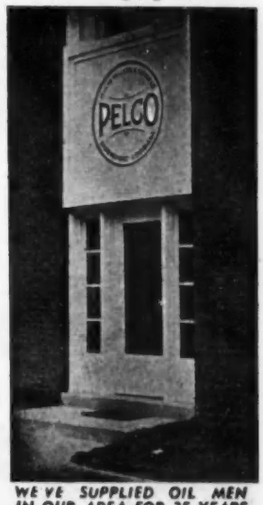

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Hatton Well Revives Interest in Area

With a natural flowing potential estimated from 1500 to 2500 barrels per day, Ranch Oil Company's Fee 2, SE SW NW 31-18n-4w, Clare County, will revive exploration in the Hatton field, opened late in 1941. The pool was opened by H. J. Hirzel, president of Ranch Oil Company, with the discovery producing 6700 barrels and then turning to water. Two other tests to the north drilled Dundee dry and no other operations followed until the present test, a northeast diagonal offset. The well is producing from Dundee lime topped at 3954 feet and bottomed at 3962 feet. Considerable area is open to the northeast but otherwise there is little room for more than a mediocre pool. Smaller operators control most of the acreage.

Osceola County: Union, Sohio and Atha's Allen 1, S½ SW SE 31-19n-9w, Rose Lake Township, dry in the Dundee and Monroe, plugged back from 3990 feet to 3200 feet and flowed 252 barrels oil in 5½ hours after a 1500-gallon acid treatment. After first 6 hours production started to drop rapidly and the well was flowing only 160 barrels per day on August 9, 4 days after treatment.

Sun Oil Company's Bowman 1, Section 6-18n-9w, diagonal southeast offset to the Allen discovery, also dropped rapidly from its natural initial of 666 barrels, going dead on the third day. Later it was revived by swabbing to 140 barrels. Current plans indicate that at least 4 more tests, besides 3 drilling, will be started in the play.

Arenac County: Arenac Oil & Gas Company's Klimick 1, C NE 18-19n-4e, gauged 16,000,000 cubic feet of gas per day in Berea sand to extend the pool ½ mile west and open up considerable new area for exploration.

Gladwin County: Sun Oil Company's Robinson 1, E½ SW SW 20-17n-2w, southeast offset to the West Beaverton pool discovery, and first completion since the field was opened this spring, logged Dundee at 3840 feet and picked up water formation at 3890 feet. Hole was to be drilled deeper.

Mecosta County: Successful Dundee lime completions on the west, east and south sides of the Fork pool, Mecosta County, has revived drilling operations in this 1942 discovery area, with the result that the field now may be elevated to top position for activity in Michigan.

Price: Both Mid-West Refineries, Inc. of Grand Rapids and Leonard Pipe Line Company of Mt. Pleasant have posted $1.48 for Rose Lake, Osceola County, Traverse crude, subject to OPA approval. This represents a 9-cent advantage over both Traverse and Monroe crudes at Reed City, 6 miles away.

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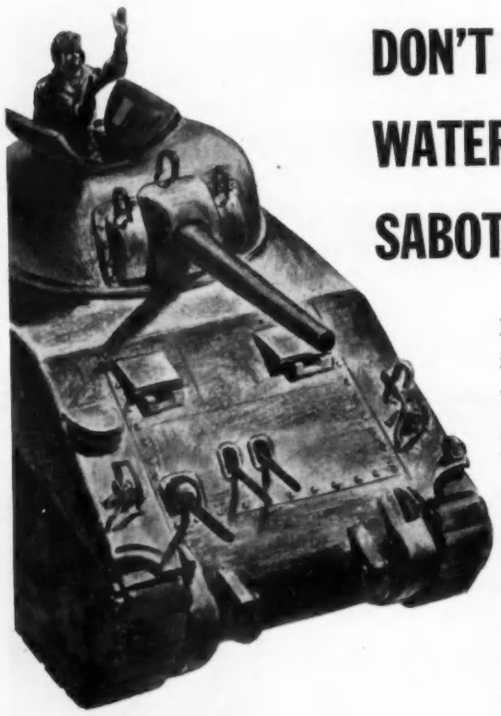

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California

New Sand Discovery May Mean Big Reserve Increase

A new sand which was given scant attention at the time it was found last summer, suddenly looms as potentially the biggest California discovery of the past five years. The pay is known as the Jones sand, and is in Huntington Beach field, Los Angeles Basin.

Wells recently completed from the zone, it has just been announced, have initial potentials running as high as 2000 barrels a day of 18.3-gravity clean oil. Sand section thickness, in excess of 800 feet in the last well drilled, indicates an accumulation of wide areal extent, roughly some 400 acres. Ultimate recovery possibilities are estimated upwards of 50,000,000 barrels.

The unexpectedly rich character of the pay was not known until it was revealed in belated development of areas adjacent to the discovery well that got under way several months ago. And its significance then was not a matter of general knowledge because all essential details of the first completions were withheld by the operators. The news broke last week when state division of land officials made the full details of the completions available.

The field is under submerged lands belonging to the state, about one-half mile offshore from Huntington Beach.

Rapid development and maximum production for the new area appears in prospect. The gravity classification is almost exactly that in which there is just now the greatest shortage, fuel oil for Pacific war needs. The supply source is ideally located with respect to transportation and nearness to refineries. Shallow depths, ranging between 3000 and 4000 feet make easy drilling.

Holdings in the new pay are shared by two operators, Southwest Exploration Company and H. R. Hamilton, respectively, with 800 and 500-acre leases.

United States Well Completions

ALABAMA

Tuscaloosa County—Failure: Stanolind's Sandel 1, 2-18s-19w, abnd 5410 ft.

ARKANSAS

Columbia County—Stephens-Smart: G. H. Vaughn's Harrell 1, sw sw nw 10-15s-20w, perf 2527-35, 12 bbls, td 2563 ft.

Miller County—Fouke: Carter's Strohacker 1, se se sw 31-16s-26w, perf 3648-62, swab 29 bbls hr, 7 in 3729 ft, td 3790 ft.

Union County—Lawson-Hillsboro: Hunt's Burnside 4, se se se 13-18s-14w, perf 2572-75 ft, 14 bbls, td 2579 ft.

Hunt's Burnside 3, sw nw nw 19-18s-13w, perf 2280-99 ft, 8 bbls, td 2307 ft.

ARKANSAS WILDCATS

Logan County—Failure: Star Mfg Co's Foster 1, 26-5n-28w, abnd 740 ft.

Ouachita County—Failure: P. H. Hassett et al's Wesson 1, nw nw nw 23-15n-19w, abnd 2532 ft.

CALIFORNIA

Fresno County—Coalinga, Old Field: Standard's 108-28A, ne sw sw 28-19-15, pump 107 bbls oil, 60 water, 140 ft perf 3030 ft, td 3036 ft.

Union's Coalinga Four 1, nw nw nw 4-20-15, abnd 3883 ft.

Fresno County—Guijarral Hills: Standard's Pleasant Valley 28-21F, se sw sw 21-20-16, flow 817 bbls 28.4-gr oil, 73 water, 272,000 gas, 195 ft perf 9173 ft, Kreyenhagen 7470 ft, Pleasant Valley 8979 ft, td 9255 ft, pd 9175 ft.

Kern County—Cymric: Honolulu Oil Corp's Fitzgerald 62A-26, sw ne nw 26-29-21, pump 107 bbls 12.4-gr oil, 27 water, 151 ft perf 1235 ft, oil sand 1080 ft, td 1235 ft.

Kern County—Belridge, South: Belridge Oil Co's 18A-35, sw sw sw 35-28-21, pump 40 bbls, 1100 ft.

Belridge Oil Co's 48A-35, se se sw 35-28-21, pump 2 bbls oil, 98 water, 141 ft perf 1350 ft, td 1407 ft, pd 1350 ft.

General's Belridge 13-12, nw ne nw 12-29-21, pump 46 bbls 14.6-gr oil, 28 water, 131 ft perf 1050 ft, td 1090 ft, pd 1052 ft.

Shell's TWA 4, sw se sw 1-29-21, pump 76 bbls 13.4-gr oil, 36 wtr, perf 1023-1012, 978-974, 966-904 ft, td 1025 ft.

Kern County—Buena Vista Hills: Standard's 121-11D, nw se se 11-32-24, pump 31 bbls 22.1-gr oil, 73 ft perf 2985 ft, td 2987 ft.

Kern County—Fruitvale: Western Gulf's Red Ribbon 21, 27-29-27, pump 153 bbls 14-gr oil, 65 water, perf 4295-3705 ft, td 4365 ft.

Kern County—Kern Front: Standard's 53, sw se sw 15-28-27, pump 20 bbls oil, 11 water, 157 ft perf 2372 ft, td 2374 ft.

Standard's 18, nw se ne 27-28-27, pump 13 bbls oil, 10 water, 225 ft perf 2525 ft, td 2530 ft.

Kern County—Midway-Sunset: Standard's Bonynge 41, ne ne nw 16-11-23, abnd 4405 ft.

Standard's 43-25A, sw ne ne 25-31-22, pump 7 bbls oil, 9 water, 130 ft perf 2932 ft, td 2935 ft.

Kern County—Mount Poso: Ring Bros' Bowles 29-28, nw se sw 29-26-28, pump 89 bbls 15.2-gr, 25 ft perf 1780 ft, Vedder 1752 ft, td 1780 ft.

Kern County—Round Mountain: Crestmont Oil Co's Staley 11, ne se se 8-28-29, pump 40 bbls 16.9-gr, perf 1615-1625, 1598-1608 ft, td 1670 ft.

Crestmont Oil Co's Staley 12, ne se se 8-28-29, pump, no est, 40 ft perf 1755 ft, Vedder 1729 ft, td 1755 ft.

Los Angeles County—Del Valle: Bankline Oil Co's Handy 104, ne ne se 18-4-17, abnd 5583 ft.

Los Angeles County—Rosecrans: Shell's Bank 1, ne se nw 18-3-13, pump 125 bbls 32.2-gr oil, 35 water, perf 6688-6585, 6545-6455 ft, td 6915 ft.

Los Angeles County—Wilmington: Union Pacific's 221 4291 ft s 130 ft w c/1 Ford and Anaheim Blvds, flow, no est, perf 2585-2586, 2683-2877 ft, td 2877 ft.

Union Pacific's 223, 7761 ft s, 1856 e c/1 Ford and Anaheim Blvds, flow, no est, perf 2236-2237, 2257-2314, 2334-2486, 2576-2780 ft, td 2780 ft.

Orange County—Huntington Beach: H. R. Hamilton's State 1, 124 ft swly at r/a fr Ocean Blvd and 160 ft wly at r/a fr c/1 21st St, flow 198 bbls 19.4-gr, 16/64 in, 260/480 lbs, td 3276 ft.

Santa Barbara County—Santa Maria Valley: Union's Bradley Lands 1-6, ne sw sw 25-10-34, flow 367 bbls 14.8-gr oil, 96 water 678 ft perf 4953 ft, td 4955 ft.

Ventura County—Ventura Avenue: Shell's Taylor 162, 425 ft n 4875 ft w c/1 No. 11, flow 665 bbls 30.1-gr oil, perf 9737-9384, 9345-9273, 9250-9154, 9113-9081, 9042-8883 ft, td 9742 ft.

CALIFORNIA WILDCATS

Fresno County—Oil Discovery: Seaboard Oil Co-Tide Water Associated Oil Co-Union Oil Co's S.T.U 53-14, nw sw ne 14-15-17, Raisin City area, flow 480 bbls 24.6-gr oil, 124,000 gas 14/64-in, 840/900 lbs, perf 6290-6305 ft, Kreyenhagen 5918 ft, green sand 6253 ft, Shell zone 5002-5014 ft, td 6406 ft, pd 6350 ft.

Kern County—Extension: British American's Recovery 1, sw sw 34-26-28, Mount Poso area, pump 20 bbls 13.5-gr oil, 20 bbls sand, 14 ft perf 1343 ft, Vedder 1321 ft, td 1343 ft.

Kern County—Failure: Texas Co's Bowerbank Unit III 8-C, se nw sw 8-29-24, Buttonwillow area, Mulinia zone 4640 ft, abnd 4927 ft.

Kern County—Failure: E. H. Mettler & Sons' 1, ne ne se 25-30-29, Edison area, granite 1710 ft, abnd 1775 ft.

Kern County—Failure: Trico Oil & Gas Co's Ward 1, nw sw sw 30-28-29, Round Mountain area, Vedder 2595 ft, abnd 2855 ft.

Sacramento County—New Gas Zone: Standard Oil Co-Texas Co's Midland Fee 5, ne ne ne 4-3-3, Rio Vista gas field, 13,337,000 gas ⅝-in, 1634/1604 lbs, perf 5035-5043 ft, Capay shale 4140 ft, Hamilton sand 4434 ft, td 5360 ft, pd 5082 ft. Zone hitherto unproduced in field.

Sacramento County—Failure: Jergins Oil Co's McCormack 1, se se nw 30-5-5, Thornton area, Markley 2657 ft, 9-1 sand 2907 ft, Ione 3179 ft, Capay shale 3277 ft, abnd 5704 ft.

San Joaquin County—Failure: Amerada's Comm 7-1, se nw nw 7-4-7, Lodi area, abnd 2900 ft.

FLORIDA

Osceola County—Failure: Hunt Oil Co's Consolidated 1, se se 27-26s-32e, abnd 715 ft.

ILLINOIS

Clay County: W. C. McBride's Franklin 1, se nw nw 2-3n-7e, abnd 2610 ft.

W. C. McBride's Neely 1, se se se 3-3n-7e, Cyp 2591-2613 ft, 35 bbls, 2613 ft.

E. B. Gill et al's Keck 5, nw sw ne 35-4n-7e, abnd 2342 ft.

Gulf's Franklin 3, ne ne ne 35-5n-7e, Tar Spgs 2304-28 ft, 40 bbls, 2335 ft.

Gartland et al's Taylor 1, se nw ne 36-4n-7e, abnd 3000 ft.

H. Luttrell et al's Reed 7, ne ne ne 15-5n-5e, abnd 2368 ft.

H. Luttrell et al's Reed 14, ne ne 15-5n-5e, McCl 2425-30 ft and 33-36 ft, 30 bbls, 2496 ft.

Clinton County: L. L. Benoist's Varel 1, sw ne nw 21-1n-3w, abnd 1314 ft.

Texas Co's Murphey 7, nw se ne 2-2n-2w, abnd 1242 ft.

Edwards County: Midstates and Ashland's Coad 1, nw nw nw 13-3s-10e, Biehl 1977-86 ft, 15 bbls, 3240 ft.

Midstate's McKinley 1, ne se 18-1n-10e, abnd 3350 ft.

Franklin County: Seaboard Oil Co's U S Coal & Coke 12, se nw 26-6s-4e, abnd 3304 ft.

M. F. Mitchell's Old Ben Coal 1-a, sw ne nw 1-6s-2e, Pt Crk 2586-2591 ft, Aux V 2689 2696 ft, 60 bbls 2696 ft.

E. S. Adkins' Orient Coal 3-B, ne se nw 12-7s-2e, abnd 2109½ ft.

Gallatin County: Cherry & Kidd's Kerwin 23, nw nw nw 14-8s-10e, U Tar Spgs 2008-23 ft, L Tar Spgs 2032-42 ft, 40 bbls, 2042 ft.

Cherry & Kidd's Kerwin 24, ne nw nw 14-8s-10e, Walts 1930-50 ft, 22 bbls, 1950 ft.

Hamilton County: H. Gussman et al's Jones-Bell Comm 1, sw ne 23-4s-6e, abnd 3340 ft.

Paul Moseback's Craddock 1, sw nw 22-6s-5e, abnd 3290 ft.

Oil Carriers' Barker 1, n½ nw ne 26-6s-5e, L. O'Hara 3180-87 ft, 118 bbls, 3187 ft.

Texas Co's Hicks 1, se sw sw 22-6s-6e, Aux V 3092-3111 ft, 53 bbls, 3113 ft.

Jasper County: Pure's Davidson 6, sw sw sw 17-5n-10e, abnd 2533 ft.

Lawrence County: W. D. Flynn et al's Max Spidel 1, se se nw 23-2n-12w, Benoist 1900-10 ft, 30 bbls, 1913 ft.

Illinois Prod Co's Smith 1, ne sw sw 27-2n-12w, abnd 2254 ft.

Moinda Co's Hershey 5, se ne se 27-2n-12w, abnd 1541 ft.

Marion County: Markham Drlg Co's Leonard-Lancaster 2, nw nw nw 16-1n-1e, abnd 1670 ft.

Big Chief Drlg Co's Farthung 3, se se nw 15-1n-2e, Rosiclare 2106-15 ft, 40 bbls, 2118 ft.

Texas Co's Hamlin 10, ne sw ne 4-2n-2e, Ben Sd 1944-54 ft & Aux V sd 2007-12 ft 50 bbls, 2025 ft.

Richland County: Texas Co's Boatman Comm 2, near cs½ s½ se sw 27-4n-10e, L. O'Hara 3063-77 ft, 90 bbls, 3094 ft.

Shelby County: Walter Duncan's Hoskings 1, nw nw ne 21-10n-ne, abnd 3236 ft.

Wabash County: Dean & Morton's McKen-

Wells Completed in the United States in Week Ended August 14, 1943

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS: *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama	....	....	....	....	....	....	....	....	1	1	1	1	3	3
Arizona	....	....	....	....	....	....	....	....	....	....	....	....	....	2
Arkansas	4	....	....	....	4	....	....	....	2	2	6	6	133	136
California	22	....	....	3	25	....	3	....	5	8	33	30	960	469
Colorado	....	....	....	....	....	....	....	....	....	....	....	6	18	7
Florida	....	....	....	....	....	....	....	....	1	1	1	....	1	....
Georgia	....	....	....	....	....	....	....	....	....	....	....	....	1	2
Illinois	18	....	....	17	35	3	2	....	3	5	43	44	1,077	1,263
Indiana	....	....	....	2	2	....	....	....	2	2	4	7	156	250
Kansas	24	1	1	3	29	1	1	....	6	7	37	34	1,037	1,019
Kentucky	5	....	....	1	6	....	....	....	5	5	11	13	210	90
Louisiana	8	3	....	2	13	....	....	....	6	6	19	20	406	629
North Louisiana	2	3	....	2	7	....	....	....	6	6	13	13	185	....
South Louisiana	6	....	....	....	6	....	....	....	....	....	6	7	221	....
Michigan	6	2	....	1	9	....	1	....	5	6	15	11	335	432
Mississippi	....	....	....	....	....	....	....	....	2	2	2	2	34	70
Missouri	....	....	....	....	....	....	....	....	....	....	....	....	15	17
Montana	1	....	....	....	1	....	....	....	2	2	3	6	147	110
Nebraska	....	....	....	....	....	....	....	....	....	....	....	....	....	26
New Mexico	....	....	....	1	1	....	....	....	2	2	3	4	150	260
New York	12	....	12	....	24	....	....	....	....	....	24	26	740	761
Ohio	1	4	....	8	13	....	....	....	....	....	13	9	545	686
Oklahoma	11	....	2	5	18	1	....	....	9	9	28	26	812	930
Pennsylvania	30	3	18	2	53	1	....	....	....	....	54	56	1,694	2,544
Tennessee	....	....	....	....	....	....	....	....	....	....	....	....	5	7
Texas	47	1	3	25	76	3	6	....	25	31	110	100	2,518	3,763
E. T. Bor. Co's	....	....	....	....	....	....	....	....	....	....	....	1	15	....
E. Texas Field	....	....	....	....	....	....	....	....	....	....	....	....	5	....
Rest of E. Texas	2	....	....	2	4	....	....	....	4	4	8	5	140	....
North Texas	11	....	3	7	21	2	6	....	6	12	35	27	616	....
W. Central Texas	3	....	....	5	8	....	....	....	3	3	11	12	227	....
West Texas	15	....	....	1	16	1	....	....	1	1	18	22	544	....
Tex. Panhandle	....	1	....	2	3	....	....	....	....	....	3	7	127	....
G. Coast, Upper	3	....	....	....	3	....	....	....	4	4	7	8	196	....
G. Coast, Lower	11	....	....	5	16	....	....	....	4	4	20	9	380	....
Southwest Texas	2	....	....	3	5	....	....	....	3	3	8	8	232	....
S. Central Texas	....	....	....	....	....	....	....	....	....	....	....	1	36	....
West Virginia	1	6	....	....	7	2	....	....	....	....	9	16	375	465
Wyoming	1	....	....	....	1	....	....	....	....	....	1	3	77	50
Total U. S.	191	20	36	70	317	11	13	....	76	89	417	420	11,449	13,991

* Includes distillate wells. † Includes salt water disposal wells.

dree College 1, nw sw nw 11-1s-13w, Weller 2301-16 ft, 38 bbls, 2323 ft.

Illinois-St. Louis Natural Gas Co's Walser 1, ne sw nw 2-1n-12w, Tar Spgs 1568-87 ft, 48 bbls, 1587 ft.

Wayne County: Pure's Michels B-1, nw sw ne 2-1n-7e, Aux V 2922-46 ft, 72 bbls, 2950 ft.

Pure's Hearn Cons 1, nw ne sw 35-2n-7e, Aux V 2950-80 ft, 52 bbls, 2980 ft.

Pure's Michels A 3, ne nw 35-2n-7e, abnd 3132 ft.

White County: N. V. Duncan's Metcalf 3, sw ne se 31-3s-14w, Tar Spgs 2318-28 ft, 25 bbls, 3049 ft.

ILLINOIS WELLS DEEPENED

Fayette County: Central State's Owen 5, ne se 8-7n-3e, otd 1478 ft, Weller 1440-78 ft, 10 bbls, 1550 ft.

Marion County: Kingwood's Shanafelt A, ne ne 20-2n-2e, otd 3439 ft, Trenton 4581-93 ft, 4653-58 ft, 54 bbls, 5256 ft.

Wabash County: Tidewater's Lejier 3, se ne 17-2s-13w, otd 2412 ft, Cyp 2450-67 ft, Bethel 2519-30 ft and 2547-63 ft, 30 bbls, 2565 ft.

ILLINOIS WILDCATS

Bond County—Failure: Aetna O&R Co's Spengel 1, nw nw se 29-5n-4w, abnd 3006 ft.

Clay County—Failure: Gulf's Paul Young 1, sw sw sw 18-2n-5e, abnd 3052 ft.

Robinson & Puckett's Barnick 1, nw ne nw 11-5n-6e, abnd 2902 ft.

Edwards County—Discovery: First National Petroleum Co et al's Myers 1, ne nw nw 11-1n-14w, L. O'Hara 2857-65 ft, 961 bbls, 2873 ft.

Fayette County—Failure: F. E. Webb et al's Mueller 1, se nw se 2-4n-1w, abnd 1652 ft.

Wayne County—Discovery: H. H. Weinert's McConnell 1, ne nw 27-1s-8e, Aux V 3068-87 ft and 3094-3104 ft, 88 bbls, 3252 ft.

INDIANA

Daviess County: R. D. Brown's Chapman 3, c nw nw 22-2n-6w, abnd 902 ft.

Gibson County: R. D. Brown's Fee 8, ne se ne 35-1s-10w, abnd 1482 ft.

INDIANA WILDCATS

Posey County—Failure: S. C. Yingling's Eickhoff 1, se nw se 21-6s-12w, abnd 2741 ft.

Sullivan County—Failure: Ohio's Shirley Realty Co 1, se nw 22-9n-9w, abnd 1121 ft.

KANSAS

Barton County—Kraft-Prusa: Magnolia's Crossardt 4, c se nw 9-17s-11w, Arb 3294 ft, 500 gals acid, pump 184 bbls, 3314 ft.

Barton County—Bloomer area: Lauck & Moncrief's McLean 1, c n½ nw se 24-17s-11w, Arb 3282 ft, swab 53 bbls per hour, 3310 ft.

Barton County—Silica: Sharon's Herter 2, sw ne ne 17-20s-11w, Arb 3300 ft, abnd 3359 ft.

Butler County—Eldorado: Wilson Oil Co's Robison 2, near c ne sw 17-25s-5e, chat 2540 ft, pump 40 bbls, 2557 ft.

Butler County—Burgess area: Rex-Morris' Lemon 1, ne se se 9-28s-7e, Miss 2737 ft, 2000 gals acid, pump 50 bbls, 2759 ft.

Cowley County—Couch: Ryan Consolidated's Victory Life 1, sw se se 12-30s-5e, Bartles 2807 ft, shot 40 qts, 100,000 gas, 2837 ft.

Ellsworth County—Stoltenberg: Atlantic's Stoltenberg 5-E, c sl sw se 27-16s-10w, Reagan 3745 ft, salt water disposal well, 3866 ft.

Greenwood County—Virgil: Rhodes & Daugherty's Bays 5, ne se se 17-23s-13e, Miss 1760 ft, 2000 gals acid, pump 35 bbls, 1788 ft.

McPherson County—Crowthers: Westgate Greenland's Sandberg 1, c s½ ne sw 26-17s-1w, Lans 2195 ft, pump 107 bbls, 2810 ft.

McPherson County—Lindsborg: Auto Ordnance's Community B-1, c ne sw 8-17s-3w, Simpson 3449 ft, pump 192 bbls, 3476½ ft.

Dickey Oil Co's Frantz 4, c w½ nw se 24-17s-4w, 3000 gals acid, pump 495 bbls, 3424 ft.

Pratt County—Carmi: Shell's Briggemann 2, sw nw sw 28-26s-12w, Arb 4274 ft, flow 45 bbls, 4314 ft.

Skelly's Hoemel 1, sw se nw 29-26s-12w, Arb 4282 ft, 5000 gals acid, flow 380 bbls 7 hrs, 4312 ft.

Pratt County—North Iuka: Shell's Sittner 2, sw sw se 30-26s-12w, Arb 4284 ft, 1000 gals acid, flow 51 bbls, 4317 ft.

Hollow Drilling Co's Harrel 4, sw ne se 36-26s-13w, Arb 4320 ft, 500 gals acid, pump 46 bbls 5 hrs, 4334½ ft.

Reno County—Zenith: Cities Service's Freeman 2, c sw se 6-24s-10w, Viola 3720 ft, 1000 gals acid, flow 32 bbls hr, 3738 ft.

Skelly's Johnson 4, c se ne 6-24s-10w, Viola 3706 ft, 1000 gals acid, flow 98 bbls 11 hrs, 3727 ft.

Rice County—Wenke: Beardmore's Wenke 2, c se se 7-20s-10w, Arb 3347 ft, 1000 gals acid, pump 20 bbls, 3370 ft.

Rooks County—Laton: Bay Petroleum Co's Swisher 2, c s½ nw sw 34-8s-16w, Lans 3053 ft, 5000 gals acid, pump 116 bbls 10 hrs, 3128 ft.

Vickers' Gamble 3, c ne nw 3-9s-16w, Lans 3089 ft, 4000 gals acid, swab 5 bbls hr.

Rooks County—Berry: Continental's Jelinek 2, sw nw nw 12-9s-19w, Arb 3461 ft, 3000 gals acid, pump 167 bbls, 3471 ft.

Russell County—West Greenvale: Gulf's Heard 3, c se sw 30-14s-12w, Lans 2847 ft, pump 308 bbls, 3188 ft.

Russell County—Unnamed: Alva Billings' Krug 2, ne se sw 8-14s-14w, Lans 3049 ft, 1000 gals acid, pump 346 bbls, 3089 ft.

Russell County—Williamson: Stanolind's Newcomber 2, sw nw ne 10-14s-14w, Lans 2988 ft, 3000 gals acid, swab 100 bbls, 3260 ft.

Russell County—Trapp: Helmerich & Payne's Sylva 3, c sw nw 20-15s-13w, Arb 3233 ft, 3500 gals acid, pump 674 bbls, 3235 ft.

Russell County—W. Trapp: Phillips et al's Weier 4, c ne ne 15-15s-14w, Arb 3274 ft, abnd 3288 ft.

Stafford County—Rothgarn: Atlantic's Hiss B-1, c e½ se sw 10-21s-13w, Arb 3552 ft, 100 gals acid, pot 2787 bbls, 3560 ft.

Stafford County—Drach: Atlantic's Alpers 6, c ne se 7-22s-12w, Arb 3674 ft, pot 860 bbls, 3686 ft.

Sumer County—North Vernon: Continental's Burke 1, se sw se 16-35s-2e, Miss 3377 ft, abnd 3437 ft.

KANSAS WELLS DEEPENED

Stafford County—Stafford: Stanolind's Hall-O'Conner 2, c e½ ne nw 14-24s-12w, otd 3866 ft, Arb 4020 ft, salt water disposal well, 4740 ft.

KANSAS WILDCATS

Cowley County — Oil Discovery: Northern Ordnance Inc.'s Ramey 1, c nw sw 20-33s-8e, KC lime 2411 ft, 2000 gals acid, pump 20 bbls, 3160 ft.

Cowley County — Failure: Creekmore & Rooney's Snyder 1-A, swc ne 7-33s-4e, Miss 3290 ft, abnd 3310 ft.

Kiowa County—Failure: Superior of Cal.'s Wright 1, c sw nw 14-30s-16w, Arb 4879 ft, abnd 4915 ft.

Phillips County—Failure: Phillips' Merklein 1, c sw sw 8-3s-19w, Arb 3654 ft, abnd 3709 ft.

Pratt County—Failure: Stanolind and Skelly's Griffity 1, se ne nw 14-26s-13w, Arb 4389 ft, abnd 4417 ft.

Rooks County—Failure: Gulf's Burmitt 1, se sw nw 34-10s-17w, Arb 3505 ft, abnd 3535 ft.

Russell County—Failure: Vickers' Stroth 1, nw ne ne 9-15s-11w, Cong 3270 ft, abnd 3300 ft.

KENTUCKY

Butler County: Fulks et al's Hammer 1, near nl 12-H-32, Hardinsburg 412-31 ft, 30 bbls, 431 ft.

Henderson County: Sohio and Hupp's Minton 1, c 17-O-23, abnd 2757 ft.

Trans-Tex-Prod's Burbank 5-A, near nl 4-P-21, Hardinsburg 2030-36 ft, 125 bbls, 2695 ft.

Gulf's Moorehead 4, 23-Q-21, Cyp 2306-20 ft, 525 bbls, 2320 ft.

Ohio County: Tom Galey's Wilson 1, c nl 9-M-33, Tar Spgs 390-413 ft, 10 bbls, 414 ft.

Webster County: Iley Browning's Sellers 3, c se 22-N-24, L. O'Hara 1407-13 ft, 20 bbls, 1422 ft.

KENTUCKY WILDCATS

Daviess County—Failure: Porter Evans et al's Ewing 2, 1-P-28, abnd 1856 ft.

Edmonson County—Failure: J. Miller Ross's Carroll 1, c nw 7-J-39, abnd 1725 ft.

Henderson County—Failure: Basin and Ashland's Latta 1, c nw 4-P-21, abnd 2740 ft.

Cherry & Kidd's Smith 1, sw sw 25-R-26, abnd 2250 ft.

Union County—Failure: Calstar Pet Co's Masen et al 1, sw 17-P-20, abnd 2585 ft.

NORTH LOUISIANA

Caddo Parish—Pine Island: Four Star Oil Co's Muslow 7, sw ne sw 5-20n-15w, 10 bbls, 1522 ft.

Kennedy & Batchellor's Muslow C-8, 5-20n-15w, 14 bbls, 1516 ft.

Caddo Parish—Unnamed: A. D. Simpson et al's Fenet 1, nw sw ne 25-21n-14w, abnd 1081 ft.

Morehouse Parish—Monroe: Nemours Corp's Tensas Delta 4, se 15-22n-4e, 1,437,000 gas, rp 835 lbs, td 2190 ft.

Union's Crossett 61, c 6-21n-5e, 10,288,000 gas, rp 540 lbs, td 2250 ft.

Southern Carbon Co's Tensas Delta 44, sw ne ne 28-22n-4e, 17,024,000 gas, rp 785 lbs, td 2210 ft.

Tensas Parish—North Lake St. John: Carter's Rhodes 3, 2880 ft e, 870 s swc, 28-9n-10e, abnd 6599 ft.

NORTH LOUISIANA WILDCATS

Caddo Parish—Failure: H. C. Owens et al's Caddo Levee Board 1, se se 12-22n-16w, abnd 6005 ft.

Durbin Bond et al's Simpson 1, sw se 17-16n-15w, abnd 6172 ft.

Claiborne Parish—Failure: Benedum-Trees et al's Vaughn 1, nw nw 23-23n-5w, abnd 7500 ft.

DeSoto Parish—Failure: M. E. Brooks et al's Jordan 1, se ne 9-13n-14w, abnd 3025 ft.

Morehouse Parish—Failure: McElreath-Suggett et al's Bonita 1, nw nw 11-22n-9e, abnd 6023 ft.

Webster Parish—Failure: J. I. Roberts et al's Garland 1, ne se 23-22n-9w, abnd 2620 ft.

SOUTH LOUISIANA

Cameron Parish—West Hackberry: Stanolind's State-Black Lake 66, 562 ft s, 553 ft w of State 65 in 17-12s-10w, 7-in 9346 ft, perf 8940-9000 ft, flow 172 bbls, ¼-in, td 9372 ft.

Jeff Davis Parish—Roanoke: Union Sulphur's Stafford 2-A, 331 ft n, se ne sw 2-9s-4w, 7-in 8717 ft, perf 8693-98 ft, flow 135 bbls, ⅛-in, td 8719 ft.

LaFourche Parish—Bully Camp: Texas Gulf Sulphur's Delta Securities 5, ne ne 1-19s-20e, 10¾ 1330 ft, perf 1132-38 ft, flow 396,000 gas, 3/16-in, td 1834 ft.

LaFourche Parish—Delta Farms: California Co's Vail 1, begin se cor sec 36, go n 1 deg 00 mins w 652 ft, th w 652 ft to lcn in 36-16s-22e, 7-in 9140 ft, perf 9028-60 ft, flow 179 bbls, 7/64-in, td 9828 ft.

St. Charles Parish—Paradis: Texas Co's LLE-Paradis 33, 377 ft s, 1923 ft e of ne cor frac sec 8 in 39-14s-20e, 7-in 10,396 ft, perf 10,336-94 ft, flow 260 bbls, 5/32-in, td 10,396 ft.

St. James Parish—LaPice: Shell's Schexnayder-Community 2, 1600 ft n, 1400 ft e sw c 38-12s-15e, 5½-in 10,085 ft, perf 7760-70 ft, flow 275 bbls, ½-in, td 10,248 ft.

St. Landry Parish—Port Barre: Gulf's Wilson & Cochran 18, 525 ft s on el 4-6s-5e fr ne cor, and 330 ft w at ra in 4-6s-5e, 5½-in 6462 ft, perf 6340-50 ft, flow 281 bbls, 5/32-in, td 6462 ft.

Pan American's Haas-Hirsch 4, 7500 ft sw'ly on el sec 4 fr ne cor and 5900 ft nw'ly at ra or 1452 ft n 60 deg 30 mins w on sl lse, 4-6s-5e, abnd 5799 ft.

Vermilion Parish—Erath: Texas Co's Unit V, 2650 ft n, 1320 ft w of se cor 16-13s-4e, 5½-in 11,250 ft, perf 11,120-38 ft, flow 154 bbls condensate, 6,120,000 gas, 11/64-in, td 10,800 ft.

MICHIGAN

Arenac County—Deep River: Arenac Oil & Gas Co's Klimick 1, c ne 18-19n-4e, Berea sand, 16,000,000 gas, 1534 ft.

Bay County—Kawkawlin: Gulf's Friebe 1, n½ nw sw 35-15n-4e, Dundee lime, flow 101 bbls, after acid, 2921 ft.

Clare County—Hatton: Ranch Oil Co's Fee 2, se sw nw, 31-18n-4w, Dundee lime, flow 810 bbls, 26 hrs, 3962 ft.

Clare County—Cranberry Lake: Taggart Bros. Co's S-10, c sw 1-20n-6w, Stray sand, 9,300,000 gas, 1321 ft.

Mecosta County—Fork: Smith Petroleum Co's Carpenter 2, s½ sw se 6-16n-7w, Dundee lime, flow 126 bbls, 3821 ft.

Sun's Ralph-Volkert 1, s½ sw ne 8-16n-7w, Dundee lime, flow 348 bbls, 3799 ft.

Missaukee County—Prosper: Gulf's Bunning 4, c ne ne, 35-22n-6w, Dundee lime, swab 72 bbls, 3824 ft.

Osceola County—Cedar: Sun's Herring 1, s½ nw nw 27-18n-9w, Dundee lime, abnd 3876 ft.

Osceola County—Rose Lake: Sun's Bowman 1, s½ ne ne 6-18n-9w, Traverse lime, flow 666 bbls 22 hrs, 140 bbls swab 24 hrs 3rd day, td 3317 ft.

Van Buren County—New Geneva: Earl G. Hartman's Lynch 1, ne ne nw 26-1s-16w, Traverse, swab 5 bbls, 1075 ft.

MICHIGAN WILDCATS

Bay County—Failure: Ervin Major's Sivier 1, c sw ne 1-18n-3e, Dundee 2784 ft, abnd 2974 ft.

Kent County—Failure: James J. McGerry's Whitten 1, se se ne 7-8n-9w, Traverse 2445 ft, abnd 2510 ft.

Lake County—Failure: Ohio's Peiser 2, s½ nw nw 18-18n-11w, Monroe 3558 ft, abnd 3658 ft.

Mecosta County—Failure: Rex Oil & Gas Co's Kinney 1, se nw sw 23-16n-7w, abnd 1480 ft.

Osceola County—Oil Discovery: Union, Sohio and Atha's Allen 1, s½ sw se 31-19n-9w, Traverse 3131 ft, pay 3157 ft, Dundee 3751 ft, Monroe 3838 ft, hfw 3883 ft, td 3990 ft, pb 3200 ft, acid 1300 gals, 357 bbls 24 hrs, 160 bbls 2nd 24 hrs, elev 1278 ft. Opens Rose Lake field.

Roscommon County—Failure: Mogul Oil Co's Alderman 1, nw se se 19-22n-4w, Traverse 3045 ft, Dundee 3771 ft, td 3951 ft.

MISSISSIPPI WILDCATS

Greene County—Failure: Gulf's School Land A-1, nw sw 16-3n-7w, abnd 2135 ft.

Madison County—Failure: Ray & Morgan's Harper 1, nw se 9-10n-4e, abnd 6510 ft.

MONTANA

Glacier County—Cut Bank: Glacier Production Co.'s McGuinness 3, se nw sw 5-35n-5w, swab 60 bbls, Lower Sunburst 2960-68 ft, td 2973 ft, elev 4122 ft.

MONTANA WILDCATS

Hill County—Failure: Callison & Edwards' Hanson 1, sw se nw 25-33n-15e, Havre area, Eagle 1270 ft, abnd 1637 ft.

Yellowstone County—Failure: Riverton Oil Co.'s Fox 1, cel nw ne 14-2n-23e, abnd 2318 ft.

NEW MEXICO

Lea County—Langlie: Anderson-Prichard Oil Corp's Harrison-Carlson 5, c ne sw 23-25s-37e, elev 3079 ft, abnd 5024 ft.

NEW MEXICO WILDCAT

San Juan County—Failure: Continental-Stanolind-Standard of Texas' Bichla-Bi-To 1, ne sw ne 12-30n-21w, Ignacio 4825 ft, abnd 4840 ft.

OKLAHOMA

Comanche County—Fort Sill: Texas Co's McAnaw 1, se sw se 9-3n-10w, perf 856 ft, pump 25 bbls, 1500 ft.

Texas Co's Spencer 3, sw nw nw 8-3n-10w, perf 840 ft, flow 85 bbls, 1121 ft.

Creek County—Unnamed: Strozier's Blosch 1, ne ne se 11-15n-9e, sand 3400 ft, abnd 3412 ft.

Creek County—Glenn: Sinclair Prairie's Berryhill 56, c s½ nw ne 16-17n-12e, Glenn 1380 ft, shot 140 qts, pump 5 bbls, 1549 ft.

Garvin County—Pauls Valley: Ed Kubst' Patchell 1, c nw sw 30-4n-1e, lower Penn, flow 920 bbls, ¾-inch cke, 4015 ft.

Stanolind's Cashion 1, nw ne se 31-4n-1e, Penn 3974 ft, flow 2053 bbls oil, 5,000,000 gas, 4216 ft.

Noble County—E. Otoe City: Davon et al's Deroin 1, c nw se 13-22n-1e, Layton 3232 ft, abnd 3246 ft.

Okfuskee County—Midwest: Portable's Long 1, se nw nw 30-11n-10e, Hunton 3636 ft, flow 40 bbls oil, 500 wtr, 3732 ft.

Oklahoma County—NE Edmond: Harper & Turner's Keil 2, c sw sw 8-14n-2w, Bartles 5899 ft, flow 32 bbls, 5929 ft.

Okmulgee County—Moris: C. D. Barns' Hill 6-A, c s½ s½ se 27-13n-14e, Morris 1572 ft, input well, 1611 ft.

Osage County—Country Club: Oklahoma Nat Gas Co's Osage 2146, sw ne ne 28-20n-12e, Burgess 1640 ft, gas storage well, 1666 ft.

Payne County—W. Markham: Okla Gas Plants' Potts 2, nw sw nw 9-18n-6e, 2nd Wx 3602 ft, shot 100 qts, pump 45 bbls, 3612 ft.

Pontotoc County—Roper: Lake and Skelly's Delaney 1, c sw se 22-5n-5e, Viola 2517 ft, 6500 gals acid, pump 90 bbls, 2628 ft.

Pottawatomie County—NE Shawnee: Broderick & Gordon's Wilson 1, c sw se 18-11n-5e, Hunton 4791 ft, abnd 4802 ft.

Seminole County—NE Wewoka: Jordan's Cox 2, c se nw 16-8n-8e, Wx 4215 ft, abnd 4230 ft.

Stephens County—Velma: Skelly's Crosbie Unit 1, sw sw nw 25-1s-5w, sand 1490 ft, shot 50 qts, flow 75 bbls 4 hrs, 1562 ft.

Stephens County—West Loco: Jackson Bros' Dilley C-4, sw ne ne 7-3s-5w, sandy lime 1080 ft, 1000 gals acid, flow 110 bbls, 1177 ft.

Tulsa County—Owasso: Continental's Kay 8, c ne nw 9-21n-13e, Bartles 1087 ft, abnd 1360 ft.

OKLAHOMA WELLS DEEPENED

Carter County—Hewitt: E. C. Lamb's Fee 1, nw nw ne 29-4s-2w, otd 2418 ft, pay 2440 ft, pump 2½ bbls oil, 22 wtr, 3151 ft.

OKLAHOMA WILDCATS

Coal County—Failure: Mid-Continent and Delaney's Bowlby 1, nw se se 14-3n-9e, Atoka 2450 ft, abnd 3802 ft.

Comanche County — Failure: Stanolind's Doughty 1, c se sw 29-3n-12w, Arb 4058 ft, abnd 4113 ft.

Garvin County—Failure: Pure's Burke 1, ne sw ne 24-3n-1w, bromide 4306 ft, abnd 4650 ft.

Kay County—Failure: Aladdin's School 1, ne se sw 16-29n-3e, Miss 3313 ft, abnd 3695 ft.

Okfuskee County—Failure: Ameeda's Barton 1, se ne se 7-11n-11e, Wx 3810 ft, abnd 3880 ft.

Wood Oil Co.'s Winn 1, ne ne se 28-11n-11e, Wx 3835 ft, abnd 3840 ft.

McIntyre et al's Thompson 1, c ne sw 32-11n-11e, Wx 3890 ft, abnd 3895 ft.

Okmulgee County—Failure: Young et al's Anderson 1, c ne sw 35-13n-13e, abnd 2141 ft.

Seminole County — Failure: J. Scroggin's Merale 1, nw ne ne 31-6n-6e, Miss 2690 ft, abnd 2705 ft.

EAST TEXAS

Cass County—Kildare: Texas Co's Davis 2, Hopson sur, perf 6010-16, flow 266.93 bbls, 40.8-gr oil, ¼-in, tp 380, cp 1380, gor 461.1, td 6644 ft.

Henderson County—Tri-Cities: Stanolind's Tri-Cities-Meredith 1-D, 1830 ft nsl and 2525 ft ewl Wiley Kay sur, elev 375 ft, Georgetown 4870 ft, Goodland 5840 ft, Paluxy 6030 ft, Massive anhydrite 7430-7580 ft, Pettit 8176 ft, Travis Peak 8330 ft, flow 204 bbls 67-gr distillate and 2,402,000 gas, 15-64-in bhc, acidized Rodessa (lower Glen Rose) perf 7566-95 feet, td 8675 ft.

Wood County—Hawkins: Bracken Oil Co's Boger 1, 5200 ft ewl and 660 ft snl E. Wideman sur, abnd 4995 ft.

Humble's Allen 12-D, 1650 ft nsl and 825 ft ewl Geo. Brewer sur, elev 309 ft, Woodbine 4494 ft, abnd 4896 ft.

EAST TEXAS WILDCATS

Limestone County—Failure: H. H. Wegener et al's Sims 1, 1230 ft from nw and 360 ft from m/e/w lines 209-ac tr, J. L. Chavert sur, blk 24, elev 370 ft, Nacatoch 1615 ft, Taylor Marl 1850 ft, abnd 3200 ft.

Smith County—Failure: C. L. Wickliffe-Patrick-Tyrell's Hackett-Pure 1, 800 ft nsl and c of e and w lines 51-ac lse, Samuel Leeper sur, elev 469 ft, Georgetown 5725 ft, Ft. Worth lime 6460-6690 ft, Goodland 7135-7261 ft, Paluxy sand, with oil saturation, 7280-7304 ft, Glen Rose 7650 ft, massive anhydrite 9208-9480 ft, jkd 9852 ft.

Wood County—Failure: F. R. Jackson-Fisher-Fields' Quitman Nat'l Bank 1, 330 ft out swc 103-ac lse, Jane Duncan sur, elev 491 ft, Austin chalk 4860-5015 ft, Woodbine 5700 ft, abnd 6016 ft.

EAST TEXAS WILDCAT DEEPENED

Hunt County—Failure: Humble's Graham 1, 885 ft snl and 660 ft ewl 128½-ac tr, Wm. Elam sur, elev 530 ft, massive 5533-5656 ft, Travis Peak 5933 ft, Cotton Valley 7268 ft, Buckner 8598 ft, Smackover 9011 ft, otd 9409 ft, base Smackover 9512 ft, abnd in Eagle Mills salt 9517 ft.

NORTH TEXAS

Clay County: Sussex Oil Corp's Hamilton 13, 1153 ft ewl and 55 ft snl blk 83, Byers sur, pump 161 bbls, sand 1104-13 ft.

Sussex Oil Corp's McInnes 6, 2260 ft snl and 800 ft ewl blk 59, Byers sur, abnd 280 ft.

Texas Co's Boddy 4, 3728 ft from sw and 350 ft from se lines HT&B sur A222, pump 49 bbls, sand 1041-55 ft.

Cooke County—Bindel: Texas Co's Meador 1, 330 ft nsl and 3500 ft ewl Henry Dixon sur, abnd 3746 ft.

Cooke County: Kingery Bros. Dr. Co's Martin 2, 2050 ft wel and 1834 ft snl 260-ac tr, E. Reed sur, A849, abnd 1032 ft.

Cooke County—Walnut Bend: Sinclair Prairie's Brown 2, 330 ft snl and 1042 ft wel sec 67, Fannin CSL, Winger sand 5486-5562 ft, flow 1465 bbls, 2-in, perf 5485-5560 ft, td 5563 ft.

Sinclair Prairie's Harrison 2, 652 ft nsl and 330 ft ewl sec 71, Fannin CSL, Winger 5480

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■ FOR SALE: Wilson Mogul drawworks with PA-100 International motor. Overhead lineshaft. All in good condition. Address Box 59, c/o The Oil Weekly, Houston, Texas.

■ FOR SALE: 1—14 x 12 Gardner Denver Twin Cylinder-Piston Valve Type Roller Bearing complete enclosed oil bath-steam engine mounted on 10 x 12 H Beam steel skids with necessary cross members and braces 20 feet long with National steam separator and trap-force feed oil pump and 6" Badgett steam lubricator for dual oil system-3" Brown throttle valve-22 tooth dual drive split sprocket for 1240 double chain. All the above mounted in **unit** and completely piped and fitted for steam connection.
2—12 x 12 Oil Well Supply Twin Cylinder Steam Engines mounted-fitted and equipped same as above. Approximate HP 750.
None of these engines needs overhauling or repairs. They are ready to go.
1—OWS 9 x 9 x 9 Drawworks unit with hydromatic brake, double engine drive water cooled drum. Complete with guards and chains.
1—400-ton 8" Ideco swivel complete w/goose neck and lefthand bottom connections.
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ft, flow 1595 bbls, 2-in, perf 5480-5555 ft, td.

Sinclair Prairie's McDaniel 1, 605 ft wel and 330 ft snl sec 71, Fannin CSL, Winger 5540 ft, flow 1339 bbls, 2-in, perf 5540-5605 ft, td 5609 ft.

Jack County: Chas. H. Kadane's Carter-Shell 10, 565 ft nsl and 1360 ft ewl TE&L 3312, pump 5 bbls, sand 268-72 ft.

Montague County—Benton: Phillips' Dodson-Dod 1, 2011 ft nsl and 700 ft ewl 435-ac tr, T. R. Jackson sur, flow 751 bbls, ½-in, Bend 5122-30 ft.

Montague County—Hildreth: Sinclair Prairie's Middleton 1, 2053 ft snl and 554 ft ewl of 158-ac tr, s½, ETRy 53, Bend 6009 ft, Barnett 6325 ft, Viola 6338 ft, Simpson 7186 ft, Ellenburger 7225 ft, flow 3800 bbls, 2½-in, perf 6050-94 ft, td 7395 ft.

Throckmorton County: A. R. Matthews et al's Brockman 3, 330 ft nsl and 730 ft ewl sec 94, Comanche Indian Reserve, pump 12 bbls, 715-718 ft.

Wichita County: W. V. Coffey et al's Michie 1, 952 ft snl and 750 ft ewl blk 7, L. Netherly sur, A240, abnd 1812 ft.

Martin Properties' Ramming 2-A, 741 ft wel and 211 ft snl lot 1, H. Hastie sur, A92, abnd 1264 ft.

Paul B. Scott et al's Waggoner Bros. 1, 2440 ft wel and 1780 ft nsl H&TC 21, blk 7, abnd 1855 ft.

Wilbarger County: W. T. Waggoner Estate's Fee 12-CC, 550 ft s and 2166 ft e of swc H&TC 5, blk 5, but in Geo. Butler sur, A3, pump 7 bbls, shot 10 qts 1093-1102 ft.

Young County: Anderson-Prichard-Coltex's Latimer 1-A, 815 ft snl and 584 ft wel lot 17, Young CSL, abnd 259 ft.

Martin & Harvey's Daniel 8, 550 ft nsl and 740 ft wel lse, TE&L 164, pump 4 bbls, 871-878 ft.

NORTH TEXAS WILDCATS

Archer County—New Oil Pay: L. T. Burns et al's Ickert 14, 523 ft nsl and 467 ft ewl blk 17, Crawford subdiv., Isaac Holeman sur, A162, Bend 4453 ft, Mississippi 5011 ft, flow 478 bbls 41.5-gr, ¼-in, acid 500 gals Bend perf 4458-62 ft, td 5166 ft, pb to 4510 ft.

Clay County—Failures: Carl Johnston et al's Owen 1, 550 ft ewl and 1170 ft nsl blk 49, Specht-McCutchen sur, abnd 1444 ft.

F. H. Gohlke et al's Carey 1, 950 ft from se and 150 ft from ne lines blk 10, Pratt's Pasture subdiv., abnd 1265 ft.

John L. Webb et al's Taylor 1, 200 ft w of n corner and on n line blk 72, Bacon subdiv., abnd 1360 ft.

Cooke County—Oil Discovery: Benson Bros. and Dennis' Cooke-Texaco 1, 2300 ft nsl and 2100 ft wel A. Patterson sur, A817, Ellenburger 1650 ft, pump 60 bbls oil, 42 water, sand 1148-63 ft. td 1702 ft, pb to 1170 ft.

Cooke County—Failure: Texas Co's Townsley 1, 330 ft out nec 218-ac tr, Wm. Slingland sur, A897, abnd 2033 ft.

Jack County—Oil Discovery: Continental's Weir 1, 330 ft out sec G. Kaltrider sur, Bend 4724 ft, Mississippi 5714 ft, Ellenburger 5825 ft, pump 67 bbls, Strawn perf 2330-32 ft, td 6011 ft, pb to 2460 ft.

Jack County—Failure: W. H. Carter et al's Roney-Standard 1, 330 ft out nwc TE&L 3324, abnd 865 ft.

Wichita County—Oil Discovery: Continental-A. R. Dillard et al's West 1, 4922 ft snl and 330 ft wel of 411.17-ac lse, G. W. Scott sur, A254, KMA lime 4265 ft, Bend 5214 ft, Miss. 5302 ft, Ellen. 5520 ft, flow 154 bbls 40-gr, 378/1 gas, 14/64-in choke, Strawn 4230-60 ft, td 5687 ft, pb to 4260 ft.

Wilbarger County—Oil Discovery: W. T. Waggoner Estate's Fee 1-MM, c ne ne H&TC 8, blk 17, elev 1174 ft, Bend 4082 ft, Ellenburger 4460 ft, flow 792 bbls, ⅜-in, acid 2000 gals perforations 4429-90 ft, td 4509 ft.

Wilbarger County—Failure: W. T. Waggoner Estate's Fee 1-OO, 1320 ft snl and 330 ft ewl H&TC 38, blk 4, abnd 1993 ft.

Young County—Oil Discovery: Deep Rock Oil Corp's Morrison 1, 990 ft snl and 330 ft wel F. McLaurin sur, A211, Bend 3624 ft, Marble Falls 4060 ft, Barnett 4375 ft, Mississippi 4439 ft, flow 268 bbls, 43-gr, ¼-in, 4439-57 ft.

NORTH TEXAS WELLS DEEPENED

Montague County—Bonita: Sinclair Prairie's Howard 5, 440 ft ewl 550 ft snl 108.38-ac lse, W. Wallace reset, otd 5242 ft, abnd 5401 ft.

Young County: Phillips' Larrimore-Pan 31, 658 ft ewl and 1050 ft nsl TE&L 2246, otd 667 ft, pump 10 bbls, shot 15 qts 696-715 ft.

NORTH TEXAS REPRESSURING WELLS

Wichita County: Cable Oil Co's Willis 30-W, 1250 ft nsl and 950 ft wel BBB&C sur A-29, sand 256-68 ft.

Cable Oil Co's Willis 33-W, 2100 ft ewl and 300 ft nsl BBB&C sur, td 320 ft.

Cable Oil Co's Willis 34-W, BBB&C sur, sand 280-88 ft.

TEXAS PANHANDLE

Carson County: Navajo Oil Co's Polling 4, c sw TTRy. 26, blk Y-2, 21,500,000 gas, 350 lbs rp, acid 9000 gals 2385-2560 ft, td 2723 ft.

Gray County: Phillips' Brown-Brow 1, se se nw I&GN 172, blk 3, elev 3261 ft, abnd 3565 ft.

Phillips' Davidson 6, 1012 ft nsl and 1651 ft ewl w½ H&GN 86, blk B-2, jkd 3035 ft.

LOWER TEXAS COAST

Calhoun County—Jay Welder: Stanolind's Welder 8-B, 1228 ft n thence 1472 ft w fr ne cor statr tract 154, Espiritu Santo Bay, abnd 5670 ft.

Jackson County — North LaWard: Cities Service's Heyne 1, 478 ft fr sl, 655 ft fr el 105-ac tr Jessie White sur, 5½-in 5242 ft, perf 5207-30 ft, flow 226 bbls, 3/16-in, td 5242 ft.

Phillips' Johnson 5, 467 ft fr n&el blk 166, 313-ac lse, Patrick Scott sur, sand 5205 ft, 5½-in 5231 ft, perf 5205-22 ft, flow 85 bbls, 3/32-in, td 5681 ft.

Jackson County—Maurbro: Humble's Egg 4, 467 ft fr sl, 1744 ft fr el 234-ac lse, Benjamin White sur, flow 266 bbls, ¼-in, 5238 ft.

Jackson County—Collier: Sun's Classen 2, 4000 ft fr nel, 330 ft fr sel 2464-ac tr, James Kerr sur, 5½-in. 2445 ft, abnd 3002 ft.

Jim Wells County — Seeligson: Magnolia's Seeligson 41, 7590 ft fr sl, 8910 ft fr el A. Ramirez gr, 5½-in 6830 ft, perf 5207-14 ft, flow 107 bbls, 11/64-in, td 6850 ft.

Sun's Miller 13, 716 ft fr wl and 1840 ft fr sl sec 65, R. P. Haldeman subdvn, 919-ac lse, Willis Millican sur 335, dual completion, 5½-in 6163 ft, perf 4899-4910 ft, flow 100 bbls, ¼-in, perf 6118-24 ft, flow 168 bbls, ⅛-in, td 6165 ft.

Karnes County — North Porter: Cox & Hamon's Johnson 3, 395 ft fr nw, 330 ft fr wl and 2168 ft fr nel Victor Blanco gr, 128-ac lse, 5½-in 3985 ft, perf 3957-80 ft, flow 260 bbls, 3/16-in, td 3985 ft.

Transwestern's Porter 1, 330 ft fr se'ly nwl, 330 ft fr sw'ly swl 600-ac lse, abnd 4065 ft.

Karnes County—Hobson: Seaboard's Rzeppa 1, 500 ft fr wl, 462 ft fr nl 101-ac lse, Don Erasmo Seguin gr, 7-in 4030 ft, perf 4010-14 ft, flow 173 bbls, 5/32-in, td 4030 ft.

Nueces County—Agua Dulce: F. A. Gillespie & Sons' Blucher 2, 1750 ft fr nel, 2550 ft fr nwl 1248-ac lse, Andres de la Fuente gr, 5½-in 7256 ft, perf 7235-45 ft, blew out, abnd 7292 ft.

Nueces County — Riverside: Seaboard's Countiss 1, 1787 ft fr nl, 467 ft fr el sec 4, Wright lands subdvn, V. L. de Herrera gr, 272-ac lse, abnd 5454 ft.

Nueces County—Agua Dulce: Sun's Harlan 2, 467 ft fr sl, 1787 ft fr wl sec 174, Brayton tr Palo Alto gr, se flank, dual completion, 5½-in 7153 ft, perf 7128-7136 ft, flow 117 bbls; perf 7145-50 ft, flow 139 bbls, ⅛-in, td 7153 ft.

Refugio County—Woodsboro: Southern Minerals' Wood 5, 2735 ft s of nl Anastacio Reojas gr, 5½-in 5565 ft, perf 5521-26 ft, flow 151 bbls ⅛-in, td 5905 ft.

San Patricio County—Midway: F. M. Boykin's Olle 1, 467 ft fr ne&wl, 2100 ft fr sl 131-ac lse, sec 71, CFP Co. lds on s flank, 5½-in 6160 ft, perf 6123-27 ft, flow 215 bbls, 9/64-in, td 6180 ft.

Victoria County—North McFaddin: Union Producing Co.'s Rydolph 1, 3067 ft fr nwl, 2950 ft fr nel 655-ac lse, blk 42, John F. Kemper sur, 5½-in 5470 ft, perf 5365-70 ft, flow 264 bbls, 11/64-in, td 5892 ft.

LOWER TEXAS COAST WILDCATS

DeWitt County—Failure: Humble's Burns 1, 660 ft fr nw&swl's T.C. Fort sur, A 185, abnd 8148 ft.

Jim Wells County—Failure: H. H. Howell's Recio 1, 467 ft fr s&el 44-ac lse, SK&K sur, A 460, 2 mi n Premont field, abnd 6015 ft.

Nueces County—Failure: Texas Gulf Producing Co.'s Simcik 1, 330 ft fr se&swl blk 5, sec 14, Bohemian Colony, E. Villareal gr, abnd 7518 ft.

Nueces County—Failure: J. Elmer Thomas' Jalufka 1, 467 ft fr n&wl's 40-ac unit 262-ac lse, O. M. Oliver sur 496, abnd 6515 ft.

SOUTHWEST TEXAS

Duval County—Conoco-Driscoll: Continental's Driscoll 20B, 1775 ft fr sl & 17,500 ft fr el 12,000-ac lse, SK&K sur 445, 6-in 3012 ft, abnd 3012 ft.

Duval County — Cadena: Taylor Refining Co.'s P. G. de Garcia 3-B, 660 ft fr sl & 3600 ft fr el Blackstone & Hardeman sur, A 288, abnd 6488 ft.

Jim Hogg County—Yeager: Magnolia's Barfield 1, 660 ft fr s&el's AB&M 168, A 248, 540-ac lse, 7-in 3750 ft, sand 3750-63 ft, flow 147 bbls, 3/16-in, td 3768 ft.

Starr County—Rincon: Continental's Slick 6-D, 1603 ft fr wl, 330 ft fr nl CCSD&RGNG 219, 6-in 3558 ft, abnd 4651 ft.

Starr County—Boyle: Fidelity's Sugarland Industries 3-D, 467 ft fr n&el's 100-ac D lse, Santiago Lopez porcion 92, A 128, 5½-in 3994 ft, perf 3938-42 ft, flow 40 bbls, 5/64-in, td 4004 ft.

SOUTHWEST TEXAS WILDCATS

Duval County—Failure: Hiawatha Oil & Gas Co.'s Southland 24, 330 ft fr el, 660 ft fr nl sec 6, Santos Flores gr, A 213, 1 mi w Benavides field, abnd 5335 ft.

Starr County—Failure: John T. O'Neil's Phillips 1, 660 ft fr sl, 1980 ft fr wl TTRR 200, 10 mi w Sun field, abnd 5548 ft.

Starr County—Failure: Sun's Alvarado 2-A, 1030 ft fr nl, 1980 ft fr el CCSD&RGNG 553, 619-ac lse, 7-in 6998 ft, perf 7365-75 ft, abnd 7816 ft.

TEXAS GULF COAST

Jefferson County—Lovell Lake: Humble's Broussard 45, 4620 ft alg el fr ne cor lse, th at ra 4734 ft to lcn, 1653-ac tr, 5½-in 7785 ft, perf 7720-22 ft, t/sand 7714 ft, flow 146 bbls, ⅛-in, td 7795 ft.

Jefferson County—Stowell: Glenn H. McCarthy's Hankamer 3, 660 ft fr n&el 40-ac unit 160-ac lse, B.A. Vacocu lge, 5½-in 8934 ft, perf 8766-76 ft, flow 297 bbls 5/32-in, td 9618 ft.

Waller County—Katy: Sun's Alt 1, south outpost, 2220 ft fr e&wl & 467 ft fr sl sec 107, 5½-in 7291 ft, perf 7217-42 ft, 13,000,000 gas, 455 bbls condensate, ⅝-in, td 7319 ft.

TEXAS GULF COAST WILDCATS

Fort Bend County—Failure: H. Merlyn Christie's Reeh & Schraexer 1, 660 ft fr ne&nwl 158-ac lse, H&TC 21, abnd 6354 ft.

Fort Bend County—Failure: O. W. Killam's Nesbit 1, Fulshear area, 285-ac tr, Rufus Wright sur, A344, abnd 7774 ft.

Harris County—Failure: H. C. Cockburn's Allday 1, 160-ac lse out of 600-ac lse, W. H. Steele sur, abnd 4537 ft.

Jefferson County—Failure: Humble's McFaddin 1-C, Salt Bayou area, 1209-ac tr, William Rutledge sur, A801, abnd 10,332 ft.

WEST TEXAS

Crane County—Sand Hills: Magnolia's Katie Lea 6, c sw sw PSL 9, blk 32, flow 703 bbls ½-in, Clear Fork 4280-4594 ft.

Lario O&G Co's Tubb-Humble 2-D, c se ne PSL 8, blk 32, jkd 4550 ft.

Crockett County—World-Powell: M. & M. Prod Co's Powell 11-B, 330 ft nsl and 1153 ft ewl lse, ELRy 62, blk BB, pump 12 bbls oil, 55 water, acid 1750 gals, shot 10 qts 2543-65 ft, td 2569 ft.

Ector County—Foster: Phillips' (was Broderick-Calvert) Bagley 9, 642 ft nsl and 520 ft ewl ne T&P 17, blk 42, T-2-S, flow 653 bbls 2½-in, acid 2500 gals 4099-4339 ft.

Stanolind's Cowden 44-B, 2970 ft nsl and 330 ft wel T&P 10, blk 43, T-2-S, pump 95 bbls oil, 33 water, shot 447 qts 4155-4305 ft, td 4334 ft.

Ector County—North Cowden: Eugene Con-

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stantin et al's Smith 1-B, 548 ft out nwc sw se T&P 7, blk 42, T-1-S, pump 41 bbls oil, 12 water, shot 375 qts 4450-4575 ft.

Gaines County—Seminole: C. U. Bay et al's Andrews-Tidal 1, c ne ne WTRy 222, blk G, flow 270 bbls, ½-in, acidized 5193-5226 ft.

Hockley County—Slaughter: L. M. Glasco et al's Mallet 24-C, 580 ft out sec lab 7, leag 48, Edwards CSL, flow 662 bbls cas, acid 12,000 gals 4950-94 ft.

Jerry Hawkins et al's Mallet 28-A, 580 ft out nec lab 17, leag 47, Edwards CSL, flow 1021 bbls, 2-in, acid 11,500 gals 4905-90 ft.

Jerry Hawkins et al's Mallet 37-A, 580 ft out nwc lab 19, leag 47, Edwards CSL, flow 947 bbls, cas, acid 12,500 gals 4918-5007 ft.

Humble's Coons 8, 660 ft wel and 2632 ft snl PSL 11, blk X, flow 983 bbls, 2-in, acid 9000 gals 4990-5050 ft.

Texas Co's Slaughter 142, 580 ft out SEc lab 70, leag 38, Zavalla CSL, flow 1772 bbls, cas, acid 13,000 gals 4910-93 ft.

T. P. Coal & Oil Co's Rains 4, 440 ft snl and 665 ft ewl lab 11, leag 42, Rains CSL, flow 530 bbls, 2-in, acid 10,000 gals 4890-4924 ft.

Trinity Drilling Co's Slaughter 2, 440 ft ewl and 2005 ft snl lab 18, leag 35, Zavalla CSL, flow 901 bbls, 2-in, acid 12,000 gals 5010-40 ft.

Ward County—Estes: Westexas O&R Corp's University 3-A, ne se ne sec 4, blk 16, flow 48 bbls, 2-in, 2525-2716 ft.

Yoakum County—Waples-Platter: Drilling & Exploration's Hammer-Shell 1-A, c nw sw sec 490, flow 111 bbls oil, 18 water, 7/16-in, acid 1000 gals 5250-97 ft, td 5345 ft.

WEST TEXAS WELL DEEPENED

Howard County: Continental's Settles 17, otd 2191 ft, pump 219 bbls, 2288-2411 ft.

WEST TEXAS WILDCATS

Pecos County—Failures: Standard of Texas' Smith-Douglas 1, c se se GC&SF 9, blk 194, elev 2595 ft, Yates 880 ft, lime 1440 ft, Permian-Pennsylvanian (Cisco) contact 6250 ft, Canyon 6780 ft, Strawn 7460 ft, Simpson 7730 ft, Tulip Creek 7850 ft, McKee 7970 ft, Ellenburger 8732 ft, abnd 9114 ft.

Herbert M. Ogg et al's McKenzie 1-D, 5610 ft snl and 1650 ft ewl GC&SF 17, blk 604, elev 3035 ft, abnd in sul water 2915-25 ft.

WEST CENTRAL TEXAS

Callahan County: L. A. Warren et al's Hickman 1, 600 ft snl and 220 ft wel, I&GN 1, abnd 595 ft.

L. A. Warren et al's Hickman 2, 1100 ft snl and 1540 ft wel I&GN 1, abnd 620 ft.

Jones County—Patterson: Fain-McGaha et al's Patterson 1, 330 ft out sec 85-ac tr, nw T&P 20, blk 17, elev 1752 ft, abnd 2238 ft.

Shackelford County—Roark-Nail: R. H. Roark et al's Nail 8, 660 ft snl and 1320 ft wel ET 136, abnd 1562 ft.

Shackelford County: Daniels & Pardue's Davis 21, 990 ft nsl and 330 ft ewl of n-116 ac e½ ET 219, pump 43 bbls, shot 30 qts 1610-19 ft, td 1621 ft.

Roeser-Pendleton-Conoco's Cook 19-A-117, 1024 ft wel and 344 ft snl se ET 117, abnd 1730 ft.

Stephens County: Carey & Carey's Cretsinger 1, 1550 ft n and 467 ft w of NEc TE&L 1090, but in SP 2, blk 1, elev 1091 ft, Bend 3340 ft, Marble Falls 3979 ft, 11,450,000 gas, 2-in, perf 4075-78 ft, td 4150 ft.

Taylor County—Merkel: Lewis Prod. Co's Huddleston 2, 330 ft snl and 990 ft ewl lot 6, Grimes CSL, leag 124, pump 33 bbls oil, 10 water, lime 2623-36 ft, td 2641 ft.

WEST CENTRAL TEXAS WILDCATS

Brown County—Failure: Breeding & Tyler's Joyce 1, 150 ft out nec 74½-ac tract, AB&M 3, abnd 1076 ft.

Shackelford County—Failure: Harry Hines et al's Swenson 1, 330 ft out nec w-104 of n-184 ac, Wm. Eggleston sur 19, abnd 2006 ft.

Taylor County—Failure: Fain & McGaha's Patterson 1, 330 ft from sw and 990 ft from nw lines lot 22, leag 148, DeWitt CSL, elev 1848 ft, abnd 2755 ft.

WYOMING

Park County—Elk Basin: Ohio's 25-Elk-3, ne se se 24-58n-100w, flow 2640 bbls, Tensleep 3976 ft, 6⅝-in csg 4120 ft, td 4172 ft, elev 4548 ft.

United States Wildcat Starts

ARKANSAS

Calhoun County: Skelly's Calion 2, 34-15s-14w, dr.

Placid's Morgan 1, se sw 12-16s-14w, dr.

Lion's B. Zimmerman 1, sw se sw 2-13s-16w, sd.

Chicot County: Hunt's Meyers et al 1, se se ne 3-19s-1w, lcn.

Columbia County: Lion's Roberson 1, nw nw 10-17s-22w, lcn.

Madison County: G. E. Brown et al's McElhaney 1, se se 2-15-28, dr.

CALIFORNIA

Fresno County: Standard's Bourdieu 5-1H, nw nw sw 1-21-16, Polvardero area between Guijarral Hills and Kettleman North Dome, rig.

Kern County: Berry Oil Co's Anderson 1, se se se 36-28-20, Belridge South area, lcn.

Continental's KCL H 1, sw sw ne 18-30-26, McClung area, lcn.

Da Me Oil Co's 3, sw sw nw 27-26-28, Mount Poso area, lcn.

Paloma Operators Committee's Paloma Unit 54-33, sw sw ne 33-31-26, Paloma area, lcn.

Orange County: P. M. Girard's Fisher 1, nw nw sw 27-5-10, Greenville area, lcn.

Ventura County: Allied Properties Inc's Camarillo 2, ne se nw 4-1-20, Conejo area, lcn.

ILLINOIS

Clinton County: Texas Co's Stokes 1, sw sw se 17-2n-1w, lcn.

Crawford County: Heath Oil Co's Heath & Son 1, sw se se 15-6n-12w, lcn.

Fayette County: J. J. Farrelly's Noling 1, sw se ne 21-7n-1w, lcn.

Franklin County: Smokey Oil Co's Franklin County Mining Co. 1, nw sw 35-6s-4e, lcn.

Jasper County: Tide Water's Eubank Comm 1, se sw ne 5-8n-9e, lcn.

Jefferson County: Sohio's Interstate Coal Co. 1, nw nw se 8-4s-2e, lcn.

Lawrence County: Olds et al's Thompson 1, se nw nw 22-2n-12w, drl.

Richland County: First National Petroleum Co's Paddock 1, e½ ne se 8-3n-10e, lcn.

White County: Skelly and Seaboard's Gilliham 1, sw nw ne 9-5s-9e, lcn.

INDIANA

Clark County: J. B. Graham's Othis Thomas 1, c sw nw 15-1n-7w, lcn.

Gibson County: George & Rather's McLin 1, swc 4-1s-12w, lcn.

Sullivan County: Ohio's Shirley Realty Co. 2, c se sw 15-9n-9w, lcn.

Warrick County: Mo-Bu-Stro Oil Co's Rebber 1, nw se se 3-4s-6w, lcn.

FLORIDA

Osceola County: Hunt Oil Co's Consolidated 2, sw sw 15-27s-33e, lcn.

KANSAS

Cowley County: Phillips' Mabee 1, nw se ne 24-31s-3e, lcn.

Ellis County: Phillips' Gaschler 1, nec 23-12-20w, lcn.

McPherson County: J. H. Hershey's Jacobson 1, c sw se 5-16s-11w, dr.

Reno County: Texas Co.'s Moore 1, c se sw 13-25s-9w, lcn.

Rice County: Hollow Drilling Co.'s Gill 1, c e½ sw ne 15-19s-10w, dk.

Phillips' Fair 1, ne se ne 16-21s-9w, lcn.

Rooks County: Nat'l Assoc. Pet. Co.'s Highley 1, c ne ne 2-8s-20w, lcn.

Shell's Howard 1, swc 26-10s-18w, rur.

Russell County: Republic Natural Gas Co.'s Anschutz 1, nwc 35-14s-11w, lcn.

Sumner County: Magnolia's Rowan 1, ne sw sw 3-30s-4w, lcn.

KENTUCKY

Henderson County: Sohio and Hupp's Ohio Valley Trust Co. 1, 22-R-25, lcn.

Rowan County: Gulf's Manie 1, sw ne ne 3-T-74, dr.

Gulf's Lee 1, ne nw sw se 15-T-74, dr.

Union County: Kingwood's Lilly 1, nw nw nw 21-O-19, lcn.

NORTH LOUISIANA

Bossier Parish: Sneed & Maynard et al's Thigpen-Herold 1, ne ne ne 15-20n-13w, lcn.

Caldwell Parish: Northern Ordnance's (formerly reported as Carter Oil Co's) McMullen 1, se nw 20-13n-2e, rig.

Ouachita Parish: Westgate-Greenland Oil Co's L. Werner 1, se sw 9-17n-2e, lcn.

SOUTH LOUISIANA

Evangeline Parish: Continental and Humble's Pardee 3, Reddell area, 1675 ft s, 987 ft w ne c 20-4s-1w, lcn 12,000-ft test.

Evangeline Parish: Danciger's Bowman-Hicks 1, Beaver prospect, nw se 4-3s-2w, 7 mi nw Pine Prairie field, lcn.

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Iberia Parish: Texas Co.'s State-Vermilion Bay 1-C, s 68 deg 37 mins w 24,038 ft fr USCGS Mon. "Club" in T-14s-6e, lcn 11,000-ft test.

MICHIGAN

Ottawa County: Southwest Dev. Co's Morren 1, sw nw se 2-5n-15w, rig.
Lake County: C. L. Maguire's Keiser 1, sw sw sw 16-17n-12w, dr.
Allegan County: Muskegon Dev. Co's Arndt 1, n½ sw sw 20-3n-13w, rig.
Barry County: Three A Drilling Co's Burns 1, ne sw ne 6-4n-9w, lcn.
Van Buren County: Homrich & Kendall's Carroll 1, se se se 20-1s-15w, rig.

MISSISSIPPI

Bolivar County: Hunt Oil Co's Rayner 1, nw ne 4-23-5w, dk.
Hinds County: Pure Oil Co's Gaddis 1, 29-6n-3w, lcn.
Jefferson Davis County: Gulf's Blackmon 1, 25-7n-19w, lcn.
Jasper County: Gulf's H. Morrison 1, 30-1n-13e, lcn.
Yazoo County: Stubblefield et al's Montgomery et al 1, 8-11n-5w, lcn.
Stone County: Harry I. Morgan's Dantzler 1, 30-2s-12w, lcn.

OKLAHOMA

Carter County: H. F. Gibson et al's Watchorn 1, c se se nw 8-4s-2w, lcn.
Kiowa County: Gulf's Groves 1, sw nw nw 6-7n-17w, c&p.
Logan County: R. H. Lynn's Adams 1, ne ne se 8-15n-4w, lcn.
Pontotoc County: W. A. Delaney's White 1, sw sw ne 16-5n-8e, lcn.
Pottawatomie County: Ohio's Van Meter 1, nw nw ne 5-8n-4e, dk.
Tulsa County: H. C. Lewis' Snider 1, se nw sw 3-18n-4e, lcn.

TEXAS GULF COAST

Brazoria County: E. Cockrell's Seaburn Est 1, 10 mi s Angleton, 2757-ac tr, Jared E. Groce 5-Lge, lcn 3500-ft test.
Wharton County: Edwin Neilson's Duncan 1, 2½ mi s Lissie, 560-ac tr, C. E. Hodson sur, A461, lcn 7000-ft test.
Wharton County: Salt Dome Oil Corp's Menefee 1, 223-ac tr, S. P. Middleton sur, A269, 5½-mi nw Louise, lcn 5500-ft test.

EAST TEXAS

Hunt County: Stanolind's I. W. Bickley 1, 1200 ft wel and 2300 ft nsl of E. F. Anderson sur, 1¾ mi sw Commerce, mln for Paluxy test.
Smith County: Skelly Oil Co's W. C. Chisum 1, 550 ft n and 1400 ft w of nwc Thos. Hawkins sur, but in Daniel Minor sur, A655, mlm for 10,000-ft Basal Trinity test.

WEST TEXAS

Hockley County: Woodley Pet Co's Harless 1, c nw nw sec 21, blk A, R. M. Thompson sur, lcn 6200-ft test.
Pecos County: Bryce McCandless et al's Cordova-Union Oil Corp-Gulf 1-10, c se se T&StLRy 10, blk 141, lcn 5500-ft test.
Reagan County: National Refining Co's Merchant 1, c nw nw L&SVRy 12, blk B, lcn 3600-ft test.

LOWER TEXAS COAST

Calhoun County: Texon Royalty and Auto-Ordnance Corp's Manuel 1, 4200 ft fr sw, 467 ft fr nwl 582-ac tr, J. M. Cortez sur, 1 mi e Long Mott, lcn 8500 ft test.
DeWitt County: Continental's Wendel 1, 660 ft fr ne&nwl 162-ac tr John F. Pettus sur, 1 mi s Myersville, lcn.
Goliad County: Humble's Berger 1, 660 ft fr nel & e'ly nwl of sw 200-ac of 299-ac, L. Ward sur, lcn 6000-ft test.
Jackson County: I. Knowles' Lesiker 1, 330 ft fr n&wl 80-ac tr E. Beaty sur 6, 3 mi ne Cordele field, spudded.
San Patricio County: Butcher-Arthur's McKamey 1, 1980 ft fr nw, 660 ft nel 2032-ac lse Coleman-Fulton Pasture subdvn SA&MG 12, lcn 8000-ft test.

SOUTHWEST TEXAS

Duval County: Sun's Barton 2, 500 ft fr el, 2640 ft fr nl 1066-ac lse, J. Poitevent sur 425, lcn 6000-ft test.
Duval County: Taylor Refining Co's Garcia 1-C, Cadena area, 660 ft fr n&el sur 55 on 161-ac lse, 1 mi w Cadena field, lcn 6200-ft test.
Live Oak County: Smith & Storey's Booth 1, 330 ft fr ne&sel of 240-ac tr, M. B. Kivlin Gr, dr.
Starr County: T. E. Stephens' Gonzalez 1, Sacatoas area, 500 ft fr nwl & 2500 ft fr nel 266-ac lse, Jose Antonio Guajardo Gr 111, lcn 2000-ft test.

SOUTH CENTRAL TEXAS

Milam County: L. Underwood Rountree's Yoakum 1, 160-ac lse, T. J. Chambers sur, 3 mi ne Rockdale, lcn 3600-ft test.

WEST CENTRAL TEXAS

Brown County: W. H. Sloan and R. C. Crabb's McBride 1, 150 ft out swc lot 11, Jesse Dickinson sur, lcn 850-ft test.
Callahan County: A. W. Cherry-Barron Kidd's Seale 1, 660 ft snl and 220 ft ewl BBB&C 129, lcn 800-ft test.
W. W. Webb et al's Shelton 1, 1200 ft snl and 1320 ft ewl SP 25, blk 5, lcn 650-ft test.
Coleman County: Sohio Producing Co's Morris 1, 1890 ft nsl and 695 ft ewl, J. F. Tompkins-GH&H 68, blk 2, lcn 3400-ft test.
Jones County: Harold G. Neely et al's 330 ft out swc tract, G. Martinez sur No 195, lcn 2500-ft test.
Watchorn O&G Co's Farnsworth 1, 2000 ft snl and 400 ft ewl blk 4, Samuel Jones sur 266, lcn 3000-ft test.
Shackelford County: C. J. Kleiner et al's Morris 2-B, sw se sw ET 166, lcn 1800-ft test.
Stephens County: Auto Ordnance Corp's Graham 1, 1401 ft out swc TE&L 1097, lcn.
Tarrant County: Jesse Martin, A. L. Moore and Leo Brewster's R. B. England 1, 440 ft out swc 86-ac tr, R. Baker sur, 2 mi ne Keller, lcn 7300-ft Ellenburger test.

Squeaks from the Bull Wheel

Diversion

What were you doing after the accident?

Just scraping up an acquaintance.

The Pity of It

A French general's wife, whose sharp tongue was a terror to all who knew her, demanded that an old servant, who had served her husband in the wars, be dismissed.

"Jacques," said the general, "go to your room and pack your trunk and leave—depart."

"Me—I can go!" Jacques exclaimed in a very ecstasy of gratitude.

Half way to the door, he suddenly turned and regarded his general. Tears came to his eyes, and in a voice charged with deep compassion, he cried, "But you—my poor general—you must stay!"

Contrast

"My rose!" he said tenderly, as he pressed his unshaven cheek against hers of soft velvet.

"My cactus!" said she, reproachfully.

British Version

At a party in London a Yank from the West was asked by a lovely English girl what part of the states he was from.

"Idaho," he told her.

"Isn't that interesting," she said. "You know, over here, we pronounce that Ohio."

Perhaps

Englishman: "I say, what are they doing?"

American: "They're dancing."

Englishman: "They get married later, don't they?"

Tsk, Tsk

"Could one refer to the Venus de Milo as the girl who got the breaks?"

"Why not, may I awsk? It's an 'armless joke."

Subtle Warning

The other day when the boys were lined up for inspection the lieutenant walked up and down the ranks and stopped in front of one yardbird and said: "Do you know, Jones, you remind me of General Grant."

Jones was so surprised that all he could say was, "Do I, sir?"

"Yes," said the lieutenant, "he didn't shave, either."

Farewell, Fido

"We certainly would have traveled much farther had not our dogs given out at the critical moment."

"But I thought that Eskimo dogs were perfectly tireless creatures."

"I-er-speak in a culinary sense."

Just a Preliminary

"Sam, how long does you get in the jug for shootin' yo' wife?"

"Two weeks."

"Only two weeks for killin' yo' wife?"

"Yeah, then I gets hung."

Needed Information

"Mary, who was that man I saw you kissing last night?"

"What time was it?"

Not Distinctive Enough

"It surely took you a long time to find me. Didn't your employer tell you how to recognize me?"

"Yassuh, he done tole me, but dey wuz sev'al gemmen wid big stummicks an' red noses."

GEOPHYSICAL TRANSFORMERS

sealed against Sub tropical humidity—"Sextuplex shielding," improved uniformity, minimum size and weight, *plug-in terminal block.

*Also available with terminal lugs.

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Full line of Geophysical electronic supplies.

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HOUSTON • TEXAS
ELECTRONIC • OIL EXPLORATION • SUPPLIES

ECOLITE-92BM
With Locking Device and Seals

TWICE APPROVED For DOUBLE SAFETY

APPROVED BY U. S. BUREAU OF MINES & UNDERWRITERS' LABORATORIES

—for use in atmospheres containing Methane or natural gas, gasoline or petroleum vapors. This double-safety lantern has a tamper-proof reflector and cover with locking device and seals. Throws 1500 ft. beam. Instantly ejects broken bulbs from battery circuit. Large handle—360° pivoting feature gives direct illumination where needed and leaves both hands free for work.

Now at Supply Stores

ECONOMY ELECTRIC LANTERN CO.
3100 W. Cherry St. Milwaukee, Wis.

Notes for the Equipment Buyer and User

Hydraulic Loader

ANTHONY COMPANY

Anthony Company, Streator, Illinois, announces a hydraulically operated device known as the "tailgate loader." This mechanism is said to make it possible for one man to load or unload from platform or truck or van bodies, heavy awkward bodies that usually require several men to handle.

One lever controls the lift, raising, lowering or holding at any elevation. When the body being raised is in a raised position, the entire mechanism locks.

The wooden, steel reenforced tailgate may be used conventionally without the operating lift.

The 5-inch hydraulic cylinder stops automatically at the ground and body level, and is capable of lifting from 750 to 1500 pounds according to the various models.

Total weight of the mechanism complete with all fittings is 670 pounds.

Anthony Hydraulic Loader

Wheatley Pump Company Changes Corporate Name

Frank Wheatley Pump & Valve Manufacturer is the new name of the company formerly known as Wheatley Brothers Pump & Valve Manufacturers, Tulsa. Wheatley's large, modern manufacturing plant, making a complete line of pipeline supplies and important war equipment for the Army and Navy, is a far cry from its simple beginning as an obscure repair shop in the rear of a Kansas City garage over a quarter of a century ago.

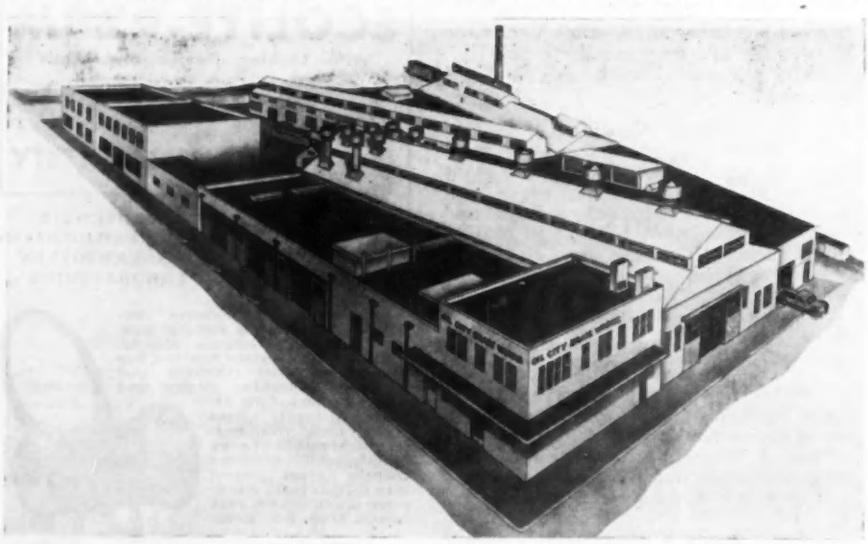
On March 1, 1916, 27 years ago, Tom and Frank Wheatley hung up their shingle in the back end of a garage in Kansas City, Missouri, under the corporate name of Wheatley Brothers. Although their original capital investment was practically nothing, the two brothers combined many years of broad experience in all types of mechanical repairs and machine design. Their first expansion came within the year when they were forced to lease a large building to take care of their patronage.

Soon they were making power pumps, river clamps, strainers, half soles and check valves, and with each successful development further expansion was necessitated.

In 1926 a plant was opened in Tulsa, managed by Tom Wheatley. In 1934, Frank also moved to Tulsa and purchased his brother's interest and assumed management of both plants. Tom then moved to Houston and organized a supply company to represent the Wheatley Brothers Pump & Valve Manufacturers. In 1936, the Kansas City plant was closed in order to centralize operations in Tulsa.

While Frank Wheatley, Sr., is still president of the company, his son, Frank, Jr., has assumed the position of vice president and general manager.

Charles Wheatley who joined the firm in 1939 as vice president in charge of sales is now leaving the firm to establish a selling organization for Wheatley products in Tulsa.



Oil City Brass Works, Beaumont, Texas, recently completed extensive additions to its plant, including the large foundry building (with ventilators) and other structures in the foreground of the above illustration. Currently the company largely is concerned with war work, but since 1901 has specialized in oil-field equipment, both manufacture and repair work.

Lee C. Moore Promotes Ensign to Eastern Manager

Lee C. Moore & Company, Inc., has announced appointment of Lloyd G. Ensign as general manager of the company's Eastern Division, to take effect immediately. Ensign will make his headquarters at the administrative offices in Pittsburgh.

L. G. ENSIGN

Prior to this appointment Ensign has been with the company for the past five years as export manager and New York representative at 30 Rockefeller Plaza, New York. The New York office will be maintained and the activities will continue under Ensign's direction in addition to his new duties.

Pennants Awarded Reading Plants

Reading-Pratt & Cady and Reading Steel Castings Division of American Chain & Cable Company were awarded the Maritime Commission's M pennant, the Victory Fleet Flag and Labor Merit Badges. The award was made at the Reading, Pennsylvania, plant.

HOW AND WHY

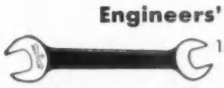
WILLIAMS' TOOLS AID WAR PRODUCTION

DATA ON WILLIAMS' "SUPERIOR" WRENCHES

● Since Williams' "Superior" (Carbon Steel) Wrenches provide exceptional strength with minimum use of critical materials, a review of standard available types is timely. "Superior" Wrenches are approximately twice as strong as earlier carbon steel wrenches of our manufacture. Comparative tests demonstrate that they average (throughout all patterns and sizes) 93% as strong as our corresponding alloy steel "Superrenches", which we feel are among the strongest wrenches ever manufactured commercially.

A description of the most generally used "Superior" wrench types follows. More detailed information is contained in Williams' Wrench Booklet, No. A-81, which will be mailed for the asking.

Engineers' Pattern



15° Angle, Double Head. For general service.

Size range, 5/16" to 5-3/8" openings. Also single head style, 3/16" to 7-5/8".

Check Nut or "Thin" Pattern

15° Angle, Double Head. For Check, Jam or Lock Nuts, etc.

Size range, 13/32" to 1-1/2" openings. Also single head style, 7/16" to 1-11/16".

Hex-Box, Regular Pattern

15° Angle, Single Head. For general service.

Size range, 13/32" to 4-5/8" opening. Larger sizes, from 3-3/8" to 4-5/8" opening, are also furnished with *striking face* on end of shorter handle.

Hex-Box, Heavy Pattern

15° Angle, Single Head. For heavy duty.

Size range, 1-1/4" to 3-1/8" opening. Also made with *striking face* on end of shorter handle throughout full size range.

Set Screw Pattern

22-1/2° Angle, Double Head. For Set Screws, Square Cap Screws & Nuts.

Size range, 3/16" to 1-1/8" opening. Also single head style, 3/16" to 1-1/8".

"S" Pattern

22-½° Angle, Double Head. For Standard Nuts and Cap Screws.

Size range, 5/16" to 2" opening.

Machine Pattern

Straight Opening. Dbl. Hd. Extra heavy for Planers, Milling Machines, Lathes, Drill Presses, etc.

Size range, 3/8" to 1-7/16" opening.

Tool Post Pattern

For Set Screws only.

For Nuts and Set Screws.

Nos. 554 to 557, for set screw sizes (both ends) 7/16" to 3/4".
Nos. 562B to 568D, openings 5/8" to 2". Same opening both ends.

Heavy "S" or Car Pattern

22½° Angle, Double Head. Long leverage wrenches primarily for railroad use.

Size range, 5/8" to 2-7/16" opening.

Construction Pattern

15° Angle. Straight handle. Deep opening for square nuts, and tapered handle for lining-up bolt holes.

Size range, 7/16" to 2" opening.

Structural Pattern

Straight opening. Offset handle. Deep opening for square nuts, tapered handle for lining-up bolt holes.

Size range, 7/16" to 2" opening.

Face Spanners

For general service.

Size range, 1" to 4" C to C of pins, in 1/4" multiples. Also Adjustable Face Spanners in 3 sizes with 2, 3 and 4" capacities.

Pin Spanners

For general service.

Size range, for circle diameters 1" to 6".

Hook Spanners

For Taper Nose Lathe Spindles and general service.

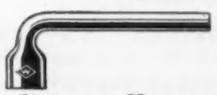
Size range, for circle diameters, 7-3/8", 9-1/4" and 12-1/2". Also Adjustable Hook Spanners in 3 sizes for circle diameters ranging from 3/4" to 4-3/4".

Pin Handle Sockets

With Hex or Square Opening for general service.

Size range: Hex openings 5/16" to 2-3/8". Square openings, 1/8" to 2".

Offset Sockets



With Hex or Square Opening for general service.

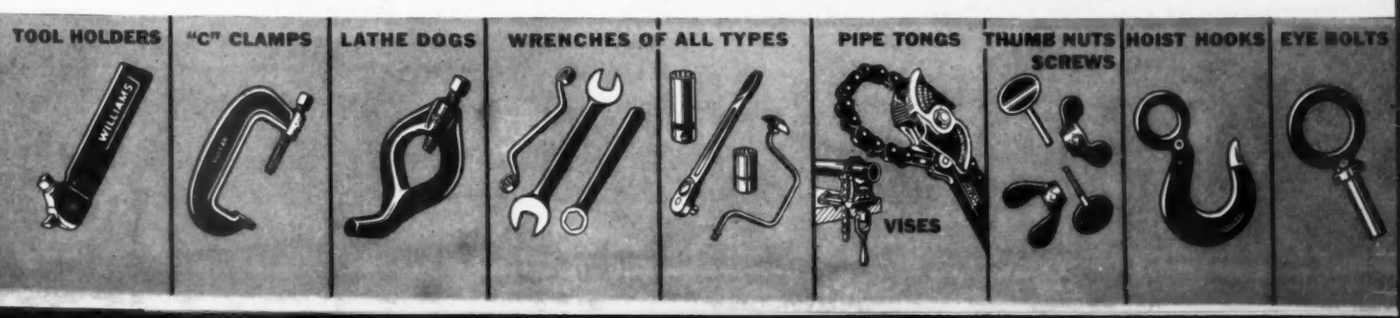
Size range: Hex openings, 5/16" to 2-3/8". Square openings, 1/8" to 2".

WILLIAMS

SUPERIOR DROP-FORGED TOOLS

Headquarters for over half a century of DROP-FORGINGS and DROP-FORGED TOOLS

Sold by Leading Industrial Distributors Everywhere . . . J. H. Williams & Co., Buffalo, N. Y.



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requires no skill to use — no special equipment to administer.

"The Entirely Different Boiler and Engine Treatment"

Shut-down time out lessened, productive operating maintained, fuel utilization increased.

Automatically, Sand-Banum removes scale and corrosion in boilers and tubes in absolute safety to personnel and equipment — while the equipment operates.

For economy and conservation in power plant functioning, write for details today.

AMERICAN SAND-BANUM COMPANY, Inc.

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QUAKER PACKINGS
have the answer—for
POWER PLANT OPERATORS

To obtain longer life—trouble-free service with minimum friction and shaft wear—they install Quaker Packings in old or new equipment.

Each brand of Quaker Packing is built to do its job—for Air, Water, Steam, Oil, Chemicals, etc.

Quaker Packings will aid you, in keeping to a minimum, maintenance and delay in wearing out of vital equipment.

For information—help—service —specify Quaker on any of your rubber requirements.

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Consult Pages 2010 and 2011 in The Composite Catalog

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QUAKER PACIFIC RUBBER COMPANY
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Reprinted from OIL WEEKLY, *Aug 16, 1943*

Men in the Industry's News

R. M. BURK has been appointed manager of sales of seamless products, for Spang-Chalfant division of The National Supply Company, with headquarters at Pittsburgh. He will assume his duties September 1. Upon his graduation from Cornell University in 1922, Burk entered the oil business in the employ of Waite Phillips Company at Tulsa. In 1926 he joined The National Supply Company as division tubular manager at Los Angeles, and later in succession became manager of sales, Spang-Chalfant, Los Angeles, and manager of sales, Spang-Chalfant, St. Louis. In 1940 he returned to Los Angeles as assistant to the vice president of The National Supply Company.

C. C. IRBY of Mt. Pleasant, production superintendent with Turner Petroleum Company since 1938, has resigned to become divisional production superintendent, Michigan division, of the Sohio Producing Company.

BOYD BRAZEEL has been appointed district manager of a new district office for International Cementers, Inc., with headquarters at Wichita Falls, Texas. Brazeel is well known in that area where for several years he operated the Service Oil Well Cementing Company which was dissolved prior to his present connection.

W. C. NOBLE, JR., has joined the land department of Deep Rock Oil Corporation at Houston, Les Stegall, manager, has announced.

ERNEST ROGERS, employed by Stanolind Oil & Gas Company at Shawnee, has been transferred to Tulsa where he will handle scout reports for eight midwestern states. Robert Mitchell, company geologist at Shawnee, has been transferred to Kentucky. Elmo Kelly and W. R. Moses will succeed Rogers and Mitchell at Shawnee.

ROBERT E. COUCH, formerly acting division petroleum engineer for The Texas Company in Tulsa, is now acting drilling superintendent for Oklahoma and is in charge of producing and drilling operations in the state. Stewart P. Kent, formerly district petroleum engineer at Salem, Illinois, succeeds Couch in Tulsa and Herbert P. Sergeant will replace Kent at Salem.

ALEX CHITWOOD, 50, San Antonio district land man for Magnolia Petroleum Company and an employe since 1926, died August 4 within a few hours after being bitten by a rattlesnake. He was a native of Alex, Oklahoma, and most of his service with the company was in the San Antonio district.

GEORGE O. MOODY, vice president in charge of production for Mid-Continent Petroleum Corporation, died at Tulsa, August 10.

Born in Titusville, Pennsylvania, he began his oil career with The Carter Oil Company, at Sistersville, West Virginia, and worked in many parts of the world, and went to Oklahoma in 1905 as an official of Standard Oil Company of New Jersey. A few years later he went to Roumania to aid in the development of fields there, and then to the Dutch East Indies and South America. He returned to this country in 1916.

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